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Three Clinical Lectures

Delivered at the Middlesex Hospital

BY SIR HENRY MORRIS, M.A., M.B. LOND., F.R.C.S. ENG.,

EMERITUS LECTURER ON SURGERY IN THE MEDICAL SCHOOL.

LECTURE I.

Delivered on Feb. 22nd.

LYMPHATIC ŒDEMA OF THE LEG AND FOOT WITH CYANOSIS AND DROP-FOOT.

GENTLEMEN,—When face to face with a person afflicted with a disease, or the result of an injury, the first questions which you will, or at any rate which you ought to ask yourselves are, "What is the nature of the affection?" and "What is the cause of it?" Before thinking about the treatment you will adopt, or whether or not you can do the patient any good, you must do your best to find answers to these queries.

The case which I wish to speak about this afternoon was sent to me with a precise, and in my opinion a perfectly correct diagnosis, ready made. I was prepared to see a young woman with "foot-drop and an uncertain œdema of the foot and leg which presented the aspects of a chronic proliferative lymphangitis following a scald inflicted some time previously." After examining the patient I had no hesitation in confirming the diagnosis. A mere glance sufficed to convince one of the drop-foot and the œdematous character of the swelling. But what about the *nature* of the œdema? and what about the pathological condition which occasioned it?

I. *As to the nature of the œdema.* What proof was there of its being lymphatic and not venous? Briefly, it was not venous œdema (1) because it was so persistent and neither disappeared nor appreciably diminished by compression or posture; (2) because the skin itself was somewhat implicated and the swollen tissues were much firmer and more brawny than they are when the œdema is venous; (3) because of the very abrupt termination or limit of the puffiness; and (4) because of the absence of phlebitis, of any manifestation of pressure upon or interference with the return of blood through the principal veins, or of any visceral disease.

CAUSES OF VENOUS ŒDEMA.

Now, concerning the fourth reason which I have just stated, let us consider for a moment what the causes of venous œdema of the legs are.

First, there is the impediment to the return of blood to the heart by cardiac or hepatic disease; there are the changes in the character of the blood and the deficient elimination of water in certain forms of renal disease; and then there is the passive exudation from the veins in persons debilitated by exhausting disease, by loss of blood, by long standing, and in old age. From any of these causes both legs are apt to become œdematous, whilst the visceral conditions referred to are prone to give rise to effusion into the great visceral cavities as well as into the general cellular tissue of the whole body.

Secondly, there are conditions which produce continuous pressure upon main veins, such, e.g., as the pregnant uterus, uterine, ovarian, and other pelvic and abdominal tumours, and inflammatory adhesions within the pelvis. From this set of causes the œdema may symmetrically affect both legs, though more frequently one only is swollen.

Thirdly, there is the œdema, often sudden and extensive, which ensues from plugging of a main vein from phlebitis.

It is important for you to remember, however, that phlebitis, especially of the smaller and medium-sized veins, may be absolutely unaccompanied by œdema; so that you must not assume from an absence of swelling that phlebitis is not present; or that pain in an entirely unswollen limb is not due to it. You need hardly be reminded, I am sure, that owing to free venous anastomoses and the consequent rapid and plenteous compensatory circulation, there may be great obstruction to venous circulation without any œdema of the corresponding limb. We see this absence of œdema in cases of great dilatation of varicose veins, and of obstruction from pressure caused by enlarged lymphatic glands or new growths.

PHLEGMASIA DOLENS.

Having given the reasons for considering an œdema to be lymphatic and not venous in origin, and having enumerated the various conditions which tend to bring about venous œdema, I will make one or two remarks respecting "*phlegmasia dolens.*" The phenomena of this disease are often attributed to venous obstruction due to phlebitis and phlebitic thrombosis of the deep veins; but against this explanation are (*a*) the firm, doughy character of the œdema, and (*b*) the absence of compensatory enlargement of the superficial veins. Without controverting the statement that plugging of the veins is a frequent condition in phlegmasia dolens, I would nevertheless assert that if lymphatic obstruction is not the sole or the essential factor of the disease, there is at any rate a combination of lymphatic with venous obstruction in its pathological causation.

RELATION OF THE LYMPHATIC AND VENOUS RADICLES TO LYMPH SPACES.

For the proper appreciation of morbid anatomy and morbid physiology a knowledge of normal anatomy and physiology is essential. I should like, therefore, to refer you, if you need your memories to be refreshed on these matters, to the Arris and Gale lectures on the "Physiological Factors involved in the Causation of Dropsy," delivered by Professor E. H. Starling at the Royal College of Surgeons of England (Professor Starling's classification of the physiological factors of dropsy and some of the details respecting them were quoted by the lecturer); and to the admirably illustrated section on "The Lymphatics" by Dr. Florence R. Sabin, in Morris's "Treatise on Anatomy."[1] Since Aselli Gasparo discovered the lacteals in 1622 (a discovery, by the way, which the immortal Harvey, the discoverer of the circulation of the blood, would never accept), and since Pecquet in 1647 discovered the receptaculum chyli, the anatomy of the lymphatic system has been diligently studied. But it was reserved for Dr. Sabin in 1902 to be the first to point out that the true origin of the lymphatic tubes is as outgrowths from the veins within the body of the embryo. Until recent years the prevailing theory was that the lymphatic system took its origin from dilated tissue spaces, that the lymphatic radicles terminated in these spaces, and that therefore these spaces had a relation to the lymphatic capillaries different in kind from that which they held to the veins. It has, however, of late been shown by Dr. Sabin and others "that the lymphatic ducts grow in length by a sprouting of the endothelium of the veins, similar to that which characterises the growth of the blood-vessels." The lymphatic system can be sharply distinguished from the tissue spaces, and the lymphatic vessels have a definite lining of endothelium arising from the endothelium of the veins.

The tissue spaces are the spaces between the individual cells of any organ, and in the meshes of the connective tissue fibres, and they are filled with a fluid derived from the plasma of the blood. The spaces are inaptly styled "*lymph spaces*" and the fluid in them is called "lymph," whereas it is really a fluid derived from the plasma of the blood. These spaces are anatomically "distinct from the lymphatics, and are no more a part of the lymphatic system than they are a part of the blood vascular system."

Whilst in a few special places there seems to be an open circulation from the tissue spaces into the lymphatics,—just as there is into the blood-vessels from the spaces in the spleen and bone marrow,—yet permanently open lymphatics in other parts of the body have not been demonstrated, and free absorption from the tissue spaces goes on through temporary apertures between the cells of the endothelium of the lymphatics.

The knowledge of these facts makes it easier to understand the interdependence and mutual relation of the venous and lymphatic factors of œdema and dropsy, and to follow the vicious circle in which an œdema starting in the lymphatic system induces venous œdema, and that again in turn aggravates the lymphatic factor. Furthermore, it has been shown that granules injected into an artery are returned by the lymphatics as well as by the veins, and also that when granules are injected into a muscle, where there are no lymphatic capillaries, these same particles

[1] Fourth edition, 1907.

pass into the lymphatics of the tendons. Hence we may infer that toxins and other poisons which injure the endothelium of the blood vascular system will by reaching the lymphatics injure the endothelium of that system also, and that thus the same cause which impairs the function of the blood vascular system may impair that of the lymphatic system too.

II. *As to the pathological state which induced the œdema.*—We shall be assisted in arriving at a knowledge of the pathogenesis of lymphatic œdema by passing in review the several causes of lymphatic obstruction and the part of the lymphatic system in which they severally occur.

CAUSES OF LYMPHATIC OBSTRUCTION.

First, stenosis of the orifice of the superior vena cava tends to cause lymphatic œdema by interfering with the due discharge of the contents of the thoracic ducts owing to backward pressure in the venous circulation. This is a rare occurrence, but a case was published some years ago in which stenosis of the cardiac orifices of both the great venous trunks, in a woman aged 43, was followed by general and excessive dropsy and œdema of a lymphatic as well as a venous character.

Secondly, obliteration, or dilatation from obstruction, of the thoracic duct may be caused by defective valves or by the pressure of tumours—cancerous, glandular, or aneurysmal.

Thirdly, obstruction in the lymphatic trunks may be caused by permeation from without by new growths; or occlusion may occur as the result of repeated attacks of lymphangitis of these trunk vessels. In cases of obstruction by permeation of new growth the œdema is solid and permanent; in inflammatory cases the swelling may subside with the inflammation of the lymphatics or with the establishment of collateral lymphatic circulation.

Fourthly, inflammation of the lymphatic capillaries and of the surrounding cellular tissues is by far the commonest cause. It may originate in a variety of ways. The inflammation may commence in the lymphatic capillaries and spread to the cellular tissue, or *vice-versâ*. This is the form of lymphangitis which has been called "*reticular*" to distinguish it from inflammation of the larger ducts.

SYMPTOMS OF RETICULAR LYMPHANGITIS.

When quite superficial it is seen in the various forms of erythema and dermatitis; when deeper seated it presents itself in the form of cellulitis. When acute the œdema is very transient, passing off with the inflammation; when the inflammation is chronic the œdema is prone to persist. Lymphatic œdema, even of the solid variety (which I will describe later on), used often to be met with after repeated attacks of erysipelas, but it is rarely seen now in that association because modern aseptic and antiseptic measures have so largely cut short or altogether prevented so-called idiopathic erysipelas as well as traumatic erysipelas and other infective surgical diseases.

In the case which I will now relate to you there was a complete absence of any sign of cardiac or thoracic duct obstruction; also of any carcinomatous, sarcomatous, or other infiltrating growth; and also of any obstruction, dilatation, noduliform sacculation, or hardening of the lymphatic trunks. It is usual in lymphangitis of the larger superficial lymphatic vessels to be able to see them as hard, knotty cords, or if the deeper lymphatics are inflamed to be able to feel them along the course of the arteries. Formerly it used to be commonly said that "lymphangitis is seen, phlebitis is felt," but this aphorism is bad. It must be put aside as misleading. It errs in two particulars, both as to what it states and what it implies, for an inflamed lymphatic if deep cannot be seen, and an inflamed vein if superficial—as, for example, the long saphena—may be seen as well as felt. If by being "felt" pain is meant, then again the aphorism is misleading, because lymphangitis is often very painful.

For the several reasons just stated the diagnosis formed in the following case was that the lymphatic œdema had been set up as a result of chronic reticular lymphangitis.

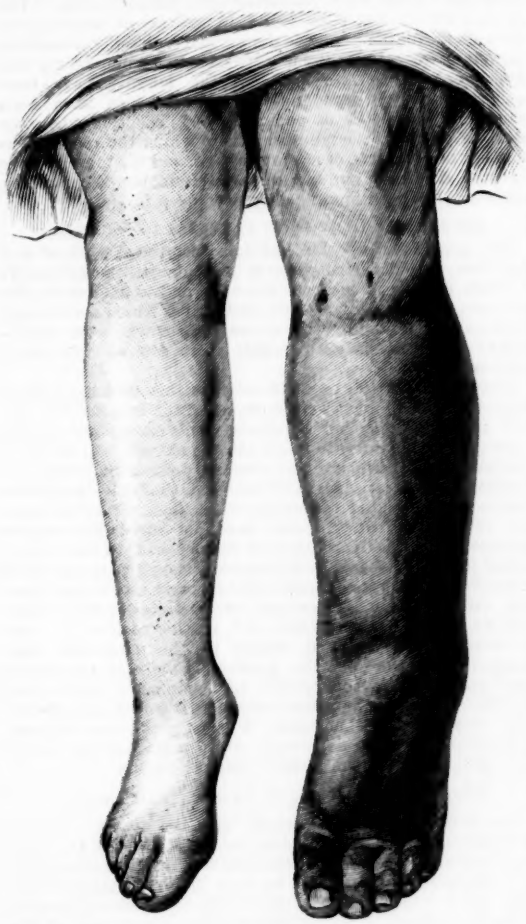
On Jan. 29th of this year a school teacher, aged 23 years, consulted me, on the advice of Mr. Thomas Carwardine of Bristol, about a swelling of the left foot and leg, which, in spite of a variety of treatment, including lymphangioplasty, was still progressing higher upwards towards the knee. She had scalded her foot on Oct. 23rd, 1908, by upsetting a kettle of boiling water over it. Boracic ointment was applied to the resulting sore and in six weeks it was healed. She then resumed her duties, her foot being quite free of pain, swelling, or stiffness. But after a fortnight the foot began to swell and to be painful, and a mottled, bluish, puffy swelling appeared in front of the ankle. The foot was very soon so swollen that she was unable to wear a shoe. After the Christmas holidays she returned to school work with the opening of the term, but was unable to continue beyond the fourth day. On Jan. 3rd, 1909, she was admitted into the Bristol General Hospital, and there remained 10 weeks; the treatment employed during this time consisted in the application of a back splint, bandaging, electricity, massage, and painting with iodine. The swelling disappeared, but returned immediately she began to get about, so that in less than three weeks she sought further advice at the Bristol Royal Infirmary, and there came under the care of Mr. Carwardine. On April 1st the foot-drop was corrected under gas; the tissues were very rigid, and adhesions about the ankle gave way audibly under the forcible movements. An anæsthetic was administered again a week later, but there were no adhesions to break down; the sacral region and the whole pelvis were carefully examined. After this, massage was employed and the patient was discharged on April 10th. She remained away till April 29th, when she was readmitted, as the ankle was more swollen and painful than before. The œdema was limited to the ankle and foot, and was most marked along the outer part of the dorsum pedis. Under $CHCl_3$ two definite adhesions were broken down. Massage was repeated. A week later there was observed an area of considerable puffiness just below, and in front of, the outer malleolus; it was very soft and painful, but around it the tissues were slightly more resistant than elsewhere. A small incision was made into the soft puffy swelling, but no pus, only dark fluid blood, escaped. After this the ankle became still more swollen and painful. The left calf had wasted one inch, but the muscles acted well to galvanism and faradism. On June 24th, when she left the infirmary, the ankle was still œdematous but not fluctuating, and the skin was more or less cyanosed. On Sept. 10th she was again readmitted in much the same state. The foot was very swollen and the œdema extended to two inches above the ankle, where it abruptly ceased. The skin over the swollen parts was of a bluish colour, but just above there was an area of hyperæmia. The X rays were employed to the foot and leg and a skiagram was also taken of the pelvis, but nothing abnormal was detected. On Sept. 14th lymphangioplasty was performed, four threads being passed from the dorsum of the foot to just below the knee. After the operation "the swelling rapidly subsided, and the skin regained a normal appearance. Some slight swelling, however, still remained on the outer side of the foot, with hyperæmia and tenderness. Movements at the ankle-joint were much freer than before the operation." It had previously been recorded in the notes that the œdema varied, and had subsided considerably on two or three occasions. Mr. Carwardine's own note is: "There was no permanent benefit from the operation. The œdema gradually spread up the leg, with a well-defined congested margin and a circular depression round the limb above the margin. The skin was dusky and congested from marked stasis whenever the foot was dependent."

After an absence for nine days the patient returned to the Royal Infirmary on Oct. 16th with the foot still more swollen and painful; and five days later an entry was made in the notes that the œdema then extended half-way up the leg and that "the tracks of two of the buried silk threads are marked by red lines in the skin."

The morbid condition had slowly ascended the leg up to the date of her visit to me (Jan. 29th, 1910). The accompanying woodcut gives an excellent idea of the appearance of the limb as I saw it. The toes, foot, and leg to within an inch and a half of the tibial tubercle were swollen. Just beyond, where the swelling terminated, there was a well-defined circular depression on the level of two small scars, the result of the lymphangioplasty, as I suppose. The skin was cyanosed, especially over the dorsum of the foot and along the outer side of the leg; there was pronounced drop-foot, and the ankle-joint was rigid and motionless. There were no enlarged glands to be felt, no evidence of any constitutional disease, and the sensation of the limb was good.

The remarks made by the patient herself and by her

mother were to the effect that the limb had been getting worse ever since the operation, and doubtless in a way this was true. But it is clear from the written record that there was immediate and considerable improvement after the lymphangioplasty, although, unfortunately, this improvement was only of very brief duration. Certainly no harm, as far as I could ascertain, had been done by the operation, and although almost the last note made when the patient was last in the Bristol Royal Infirmary tells of red lines in



the skin over the course of two of the silk threads, the threads apparently had not to be removed, nor is there any mention made of suppuration in their tracks having occurred.

TREATMENT OF LYMPHATIC ŒDEMA.

The question of treatment was clearly a most important one in this case. The youth of the patient, the fact that she would be dependent for her livelihood on her profession of a teacher, the utter uselessness of the limb as it was, the pain it caused her, and, almost worst of all, the fact that the disease was slowly creeping up the limb, all had to be taken into serious account.

Ought the limb to be amputated at once? If not, was it not probable that amputation at a higher level would have to be resorted to later on? Should a trial be made of the somewhat empirical treatment by ligation of the main artery, as suggested several years ago by Carnochan and successfully employed by himself, Vanzetti, and others? Was it possible that the cause of the disease was due to an invasion of the tissues by some bacterial infection, and, if so, might not an injection of a vaccine made from a pure culture of the micro-organism, or of the organism itself bring about a cure? Or, lastly, should a trial be made of inunctions, the internal administration of drugs, and a more prolonged use of bandages, massage, and posture?

Certainly the ligation of the femoral artery was worth trying before considering the question of amputation. It is impossible to deny that ligature of the main artery of a limb has occasionally proved successful; indeed, quite an encouraging proportion of cases in which it has been employed have been cured. Tying a main artery does not reduce the size of a normal limb, but it does of an elephantiasic one. Its mode of action has been explained by the increased activity of the process of absorption which is said to follow when the force of the vascular circulation is weakened.

But bearing in mind that lymphatic œdema from an inflammatory cause is not fatal, that many persons have lived from 25 to 55 years with this condition, that a cure may reasonably be expected in cases of recent origin, and sometimes occurs in advanced and old-standing cases, I was averse to the adoption of any drastic treatment. Before resorting to ligature of the femoral or to amputation, and in the event of the fluid in the affected tissues being proved to be sterile, I was in favour of continuing palliative remedies. I therefore suggested that the patient should take small doses of potassium iodide, that the leg should be kept elevated and bandaged, and that inunctions of mild mercurial ointment, or of equal parts of this and of an ointment of iodide of lead, should be diligently tried.

In acknowledging my letter Mr. Carwardine wrote on Jan. 31st: "A bacteriological examination was made at an early stage"; and in a subsequent communication he informed me that Professor Walker Hall had been consulted from the pathological and bacteriological point of view; also that "some of the serous fluid was withdrawn with a syringe and examined for organisms, but so far as I remember none were found." Nocturnal blood had also been examined with negative result. Again, on Feb. 11th, Mr. Carwardine wrote: "I saw the patient yesterday: the leg is much bigger than ever before; and your suggestions are being carried out for the present to see the effect." The next and last communication I received from him was on March 8th last, five weeks and three days after the patient's visit to me, and just a fortnight after the delivery of this lecture. It tells as follows: "The sequel is that the œdema of the leg has gone down; but that the patient has hæmoptysis with distinct physical signs of tuberculosis at the right apex."

CAUSES OF RETICULAR LYMPHANGITIS WITH ŒDEMA.

The history of this case leaves little, if any, doubt that the scald of the foot was the cause of superficial lymphangitis, and this in turn of the lymphatic œdema. I have known a similar condition to have occurred in the forearms of a girl after a scald. Anything, such as a chill, a scratch, abrasion, twist, sprain, or friction, posture, or the pressure of a tight sleeve or bandage, may set up a simple reticular lymphangitis, either attended or not with erythematous redness of the skin. If the inflammation of the lymphatics is continued or repeated it will be followed by lymphatic œdema of the affected part. The cases of lymphatic œdema which we meet with in this country have usually their origin in some simple general cause of this kind. I have lately been consulted by a gentleman (recently home from India) on account of recurrent lymphatic œdema of the forearm and back of the hand. Fourteen years ago I removed a large lipoma from his left pectoral region. Immediately after recovering from the operation he went out to India to take up a high official position there. During the last 15 months of his residence in that country his left forearm and hand swelled and were painful, occasionally, after prolonged exertion on shooting expeditions. The puffiness after continuing a week or less disappeared. In January last, after a few days' shooting, the œdema came on and did not pass off again as on previous occasions. The forearm and arm below the deltoid insertion were slightly swollen, the back of the hand was distinctly puffy and somewhat painful, and there was considerable stiffening of the fingers. Not unnaturally, perhaps, he was concerned to know if there was any connexion between the supple moveable scar in the pectoral region and these attacks of localised œdema of the upper limb. I was, of course, able to assure him that there was not. Nor could I find any assignable cause for the symptoms other than the effort, frequent recurrence of the same posture, and possibly some slight friction of the forearm attending the exercise of shooting.

In rare cases lymphatic œdema has been set up by the inflammation around a chronic ulcer or by the extension of inflammation to the superficial lymphatics from some deep-seated disease, such as caries or necrosis of a bone, or inflammatory disorganisation of a joint, especially the knee-joint. Lymphatic œdema has also been observed in association with syphilis, tubercle, and cancer. The last-mentioned disease in its advanced stages as a cause of solid œdema of the upper limb is unhappily only too well known in this hospital; but we may look forward with hope that the dire and terrible sufferings which this condition causes, and for which in some of the worst cases amputation of the whole upper quarter has been practised in this hospital and elsewhere, will in future be ameliorated by the more clement operation of lymphangioplasty, which is one of the more practical results of the research work which has been so well carried on in our hospital.

Lymphatic œdema is sometimes very localised. It may begin in any part of a limb and may spread upwards from the fingers or toes, or downwards from any point, or it may extend both upwards and downwards at the same time when it commences at some situations such as in the integuments near the patella.

Lymphatic œdema is sometimes seen as a *congenital* affection of a cheek, a limb, or a section of the abdomen in new-born infants; in these cases there is an indurated œdematous swelling identical with that which is produced by lymphangitis in older persons. The dorsum and the sole of the foot are the parts in new-born infants which are most prone to the affection; and this is noteworthy because in the sole of the foot the subcutaneous capillary plexus of lymphatics is more abundant than in any other area of the lower limb.

Both sexes and all ages are liable to reticular lymphangitis and lymphatic œdema, but it occurs most frequently in young adult males.

ELEPHANTIASIS.

In advanced cases in which the œdema has been of long standing, hypertrophy and induration of the connective tissue are superadded to the œdema. This hypertrophy is not necessarily, nor always, of an inflammatory origin, but is a result of mere chronic persistent œdema. It is due to the organisation of the exuded plasma cells and to the rapid multiplication and growth of the cells of the connected tissue of the part into which the passive outflow of the lymph plasma has occurred.

To this condition of œdema with hypertrophy, different names have been applied, such as solid œdema, elephantiasis Arabum, scleriasis, bucnemia tropica, and several others besides. It is common in hot, moist climates, and is endemic in Barbadoes (hence called Barbadoes leg), in some parts of India, China, Japan, and many other places in the tropics.

Elephantiasis is met with in all degrees of intensity, and it is quite impossible clinically to be sure when simple œdema ends and when solid œdema—i.e., lymphatic œdema with hypertrophy of the cutaneous and subcutaneous tissues—has commenced. The transition is generally gradual and insidious. The fact of primary importance in all stages of the disease is the lymphatic obstruction and œdema, and therefore we speak of the milder forms under the title "lymphatic œdema," whilst we reserve the name elephantiasis for the more extreme cases in which it is quite clear that hypertrophy of the connective tissue is present.

In the cases of elephantiasis met with in the tropics it is common to find a parasitic worm—the "filaria sanguinis hominis," a minute nematode worm about the size of the human red blood corpuscle—in the lymph- and blood-streams, in lymphatic abscesses, and in exudations into the serous cavities of the persons affected. The filaria in these cases is the assigned cause of the disease.

In the sporadic cases we meet with in England, and those which occur in temperate climates generally, this parasite may be confidently excluded from the causes of either elephantiasis or lymphatic œdema; even giant proportions may be attained by limbs affected with elephantiasis owing its origin to traumatic or other simple non-parasitic causes.

MORBID ANATOMY OF ELEPHANTIASIS.

When, at a post-mortem examination, or after amputation, opportunity has been afforded to dissect and examine an elephantiasic limb, the pathological changes which have been found have been limited as a rule to the superficial structures—namely, the skin and subcutaneous tissue. A quantity of clear, yellowish-white fluid pervaded the tissue spaces and the glistening swollen fibrous or lardaceous-looking subcutaneous tissue; there was hypertrophy of the cellular and, to a less degree, of the dermic and epidermic tissues; and great dilatation of some of the lymphatic plexuses, and in some cases of the more superficial veins, was observed. Rarely were the lymph nodes or glands enlarged or altered. Microscopically the lymphatic vessels were choked with cells, and large numbers of cells were accumulated outside the vessels. Some of the lymphatic tubes were converted into fibrous cords. The exuded lymph has been found in process of organisation towards fibrillation, and the dermic and epidermic structures as well as the cellular tissue were seen to be undergoing real hypertrophy. In rare instances the muscles have been undergoing fatty degeneration, or the bones have been thickened or carious or necrosed; but excepting when the starting point of the lymphangitis to which the œdema was due has been disease of a joint or bone, and the muscles have become atrophied and degenerated from non-use, nothing abnormal has been found beneath the deep fascia.

ABSENCE OF LYMPHATIC PLEXUSES IN MUSCLES.

We must associate this last fact with the absence of any capillary lymphatic network in muscular tissue generally. Though lymphatic plexuses are rich and abundant on the tendons, and though lymphatic ducts, it is true, pass through muscles, yet in the muscle tissue proper, where the blood-supply is particularly abundant, there are no lymphatic capillaries.

In the case of the pectoral muscles this fact has special importance in connexion with cancer of the breast. Though it is unquestionable that lymphatic ducts course through the great pectoral muscles to reach (1) the axillary, (2) the subclavian, and (3) the internal mammary chain of lymphatic glands, it is more than probable that the only lymphatic capillaries associated with muscles are those of the tendons. For this reason, and because we now know that cancer spreads along the lymphatics by a process of permeation by actual growth, rather than by the mere transit of cancer cells along the lymph stream, which till recently was regarded as the only way of extension or metastasis—for these reasons, I say, the ruthless and routine removal of the pectoral muscles without regard to the particular anatomical relations of the growth, which is commonly now practised in operations for mammary carcinoma, is often as useless and unnecessary as it is rash and severe. Into this question, however, I must not now digress, especially as I have somewhat lately published my views upon it in my "William Mitchell Banks" lecture.

WHY JOINTS STIFFEN IN LYMPHATIC ŒDEMA.

One last remark in connexion with the anatomy of the lymphatics I will add. I think we can see that in the richness and abundance of the lymphatic plexuses in connexion with the tendons of muscles we have the explanation of the drop-foot and the rigid and immobile digits whether of the foot or hand. Naturally, where the reticular arrangement of the lymphatic capillaries is most abundant, there we should expect to find the freest exudation if the lymphatics are obstructed, and, as the disease advances, the greatest hypertrophy of tissue; and as a consequence of abundant exudation about the tendons, there will ensue resistance to their free action and stiffening of the joints upon which they normally act.

CONDITIONS SIMULATING ŒDEMA.

In conclusion, and by way of a postscript, I want to refer to a remark I made at the beginning of this lecture. I said a mere glance convinced one as to the presence of œdema. But can we always so easily satisfy ourselves? Can we always be sure from mere appearances that the swelling is due to œdema? Though the diagnosis of lymphatic œdema will rarely be difficult, it may be mistaken for hypertrophy of the skin as in scleroderma, or for excess of subcutaneous fat. Unless scleroderma commences as a true lymphangitis of the most superficial lymphatics, followed by rapid effusion (and then the two diseases are essentially the same), there is no pitting of the skin. Neither is there pitting in cases of overgrowth of the subcutaneous fat. The cyanosis of the skin when present is caused by obstruction to the flow of blood in the venous radicles due to the pressure upon them by the exuded lymph. The integument in some cases is described as having been of a dark brown colour, and the bronzing of the skin as having suggested Addison's disease.

The Hunterian Lectures

ON

THE EVOLUTION OF THE PELVIC FLOOR IN THE NON-MAMMALIAN VERTEBRATES AND PRONOGRADE MAMMALS.

Delivered before the Royal College of Surgeons of England on March 4th and 7th, 1910,

BY R. H. PARAMORE, M.D. LOND., F.R.C.S. ENG.

LECTURE II.*—PRONOGRADE MAMMALS.

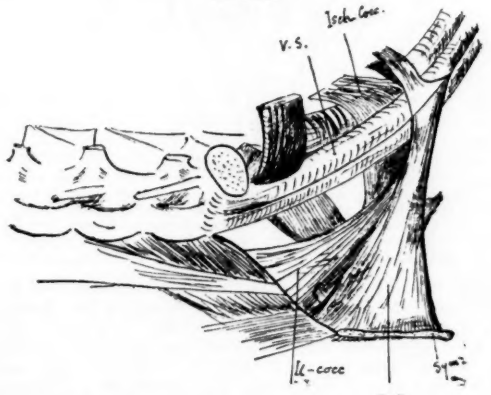
Delivered on March 7th.

THE PELVIC FLOOR MUSCLES.

In Carnivora and Pronograde Primates.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—In the great majority of terrestrial mammals the three pairs of muscles connecting the pelvis with the tail, and which we have hitherto spoken of as the antero-posterior and the lateral caudo-pelvic muscles, but which in mammals are known as the pubo-, ilio-, and ischio-coccygeus, are represented; and, with the tail and the superficial sphincteric layer, form an effective closure of the pelvis. In some, as the Carnivora and Pronograde Primates, these pelvic floor muscles exist as well-developed muscular sheets, disposed in two layers on each side of the pelvic cavity—an inner layer, consisting of the pubo- and ilio-coccygeus, which in man together form the levator ani muscle, and an outer, the ischio-coccygeus, representing the coccygeus of human anatomy. Of these the pubo-coccygeus and the ilio-coccygeus form a continuous sheet, the posterior margin of the one being contiguous with the anterior margin of the other, so that more or less difficulty may be experienced in differentiating the interval between them, and which is not always accurately defined by the passage of the obturator nerve (Fig. 10). The pelvic

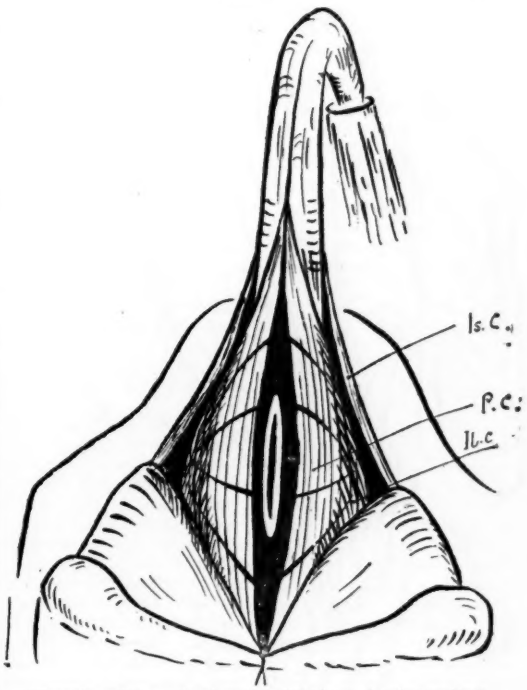
FIG. 10.



Dissection of the pelvis, showing pelvic floor muscles of a dog (fox-terrier) from within, about half life-size. P.C., Pubo-coccygeus muscle. Il.-cocc., Ilio-coccygeus muscle. Isch.-cocc., Ischio-coccygeus muscle. V.S., Ventral sacro-coccygeus muscle.

line of attachment extends along the internal aspect of the symphysis of the pubis in the whole of its extent, and along the ilio-pectineal line as far dorsally as the sacrum. From this wide origin the fibres converge as they pass upwards and backwards to reach the root of the tail, into the ventral mid-line of which they are inserted. At this insertion the ilio-coccygeus ends in a fascial strand, which is placed lateral to the pubo-coccygeus. Thus these two muscular sheets, one on each side, together form a funnel-shaped closure to the pelvis, which leads from the abdominal cavity to the perineal region, and which ends at the outlet as a vertical slit, formed by the most posterior fibres of the pubo-coccygei. At their origin and insertion these are attached to the mid-line, and thus are in apposition with each other, and in their course are only separated by the rectum and urogenital passages, which quit the pelvic cavity by passing between them (Fig. 11). To the outer side of

FIG. 11.



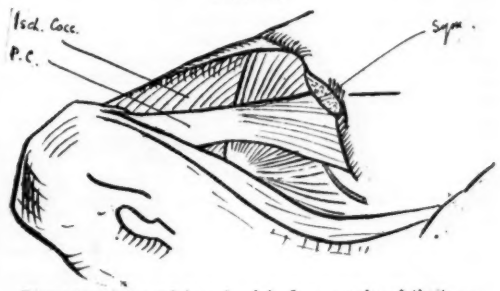
Dissection of the perineal region of the lynx, showing vertical slit formed by posterior margins of pubo-coccygei, through which the rectum alone is represented as passing. P.C., Pubo-coccygeus muscle. Il.-c., Ilio-coccygeus muscle. Is.-c., Ischio-coccygeus muscle.

this internal layer is the ischio-coccygeus, which also forms a conspicuous layer, the breadth of which varies in different species. It arises from the ischial spine and adjacent bone, and is inserted into the lateral aspect of the root of the tail, separated from the caudal attachment of the pubo- and ilio-coccygeus by the ventral sacro-coccygeus.

In Rodents.

In the Rodents the pubo- and ilio-coccygeus are, as a rule, not well developed, and are not comparable to the homologous muscles in Carnivora and Primates. They exist as thin muscular sheets, which arise from the anterior part (only) of the symphysis pubis and the adjacent part of the

FIG. 12.



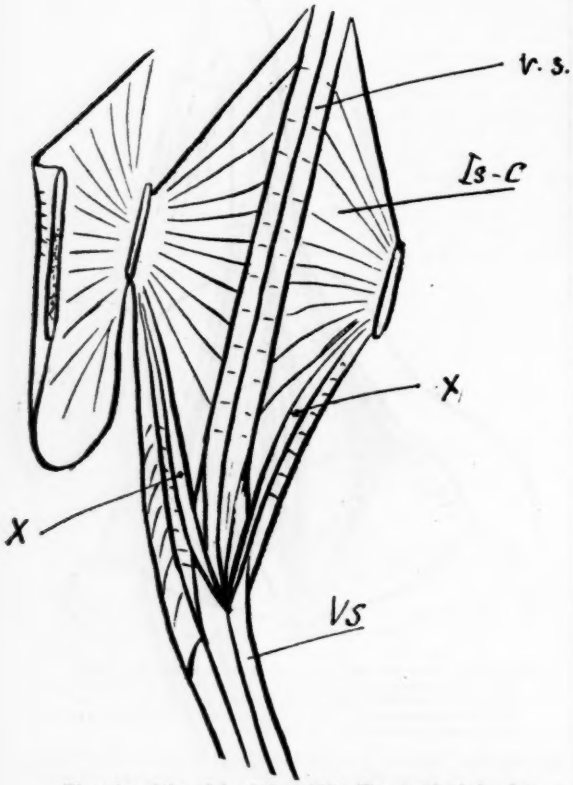
Dissection of the pelvis and pelvic floor muscles of the tree-climbing porcupine from within. P.C., the pubo-coccygeus muscle. Isch.-cocc., the ischio-coccygeus muscle. Sym., Symphysis pubis.

antero-lateral pelvic wall (brim), and are inserted into the tail, not as a rule into the median line, at least not with that precision found in the Carnivora and Pronograde Primates,

* Lecture I. was published in THE LANCET of May 21st, p. 1393.

although some of their fibres may be traced into it, but usually ending in the fascia covering the ventral sacro-coccygeus, and more often towards its lateral aspect (Fig. 12). In some species the ilio-coccygeus appears to be altogether absent, or, according to some, is incorporated with the distal part or border of the ischio-coccygeus, as in

FIG. 13.



Dissection of the pelvis of the rabbit. The symphysis has been divided, the right innominate bone turned outwards, and the left removed, leaving ischial spine. Life size. Is.-c., Ischio-coccygeus muscle. v.s., Ventral sacro-coccygeus muscle. x, So-called ilio-coccygeus muscle; this is inserted into mid-line of the tail, being thus separated from the caudal attachment of the ischio-coccygeus by the ventral sacro-coccygeus.

the rabbit (Fig. 13). In others, as the Squirrel, both the pubo- and ilio-coccygei are well developed.

The ischio-coccygeus in the Rodents is usually conspicuously present. It exists as a wide muscular sheet, as a rule quite distinct from the other muscles, and placed on their outer aspect. Often it is fan-shaped, as in the rabbit, arising from the ischial spine and passing inwards, its fibres radiating widely to be inserted into the proximal coccygeal vertebræ by an extensive insertion. In the tree-climbing and brush-tailed porcupines the muscle is remarkably developed. Its origin is not limited to the ischial spine, but it extends along the pelvic outlet, reaching almost to the symphysis. From these wide origins the fibres spread as they pass to the tail, forming thick and broad strata, clearly of considerable strength, and are inserted by still more extensive attachments. The pubo-coccygeus in each is an insignificant looking, thin sheet of muscle. An ilio-coccygeus cannot be distinguished.

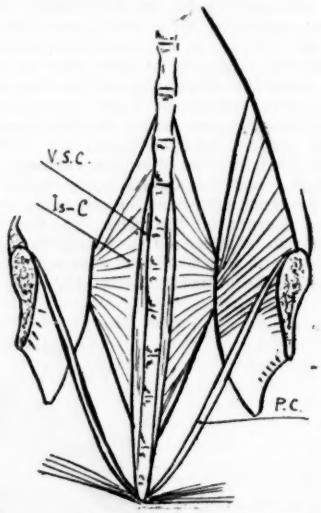
In Ungulates.

In yet other mammals—the large group of ungulates—the pubo- and ilio-coccygeus are entirely absent, and the ischio-coccygeus is the only muscle of the group occurring; but, unlike the muscle in the majority of the rodents, it does not form such an extensive sheet. In the horse (Fig. 18) it arises from the ischial spine by a fascial aponeurosis, and passes as a thick, strap-like muscle upwards, inwards, and slightly backwards, to be inserted into the root of the tail. The manner of its attachment in the horse is interesting, for at its insertion it splits into two laminæ; the outer, much the larger, passing upwards external to the ventral sacro-coccygeus, to be inserted by two slips into the transverse processes of the second and third coccygeal vertebræ; the median, or ventral lamina, smaller, passes inwards around the ventral sacro-coccygeus, and is inserted in the middle line into the fourth coccygeal vertebra. From the relation of these two parts of insertion to the ventral sacro-coccygeus we may perhaps speculate so far as to say that whilst the larger lateral insertion may be regarded as the ischio-coccygeus proper perhaps the ventral slip represents all that is left of a muscle, corresponding to the so-called ilio-coccygeus of the rabbit, which may have become fused with the ischio-coccygeus to a greater extent than it has done in that rodent, for in both its caudal attachment is separated from that of the ischio-coccygeus by the ventral sacro-coccygeus. In the Panolin Deer (Cervus Eldi) the disposition of the ischio-coccygeus is similar to that of the horse, except that no slip leaves the muscle to pass around the ventral sacro-coccygeus to be inserted into the median line.

In Hyrax.

The condition in Hyrax is exceedingly interesting (Fig. 14).

FIG. 14.



Dissection of the pelvis of the Hyrax. The symphysis has been divided and each innominate bone turned outwards. About double life size. P.C., Pubo-coccygeus muscle. Is.-c., Ischio-coccygeus muscle. V.S.C., Ventral sacro-coccygeus muscle.

Although this species bears "a singular resemblance to the Rodents" (Beddard), from other anatomical peculiarities it is placed by zoologists amongst the Ungulates; and is indeed considered to be a survival from antiquity (Beddard). It has no free tail; and, as in the Rodents, the ischio-coccygeus is well-developed, and exists as a fan-shaped muscle arising from the ischial spine, its fibres spreading out as they pass inwards to be attached by a wide insertion into the remaining coccygeal vertebræ—thus forming, with these vertebræ and the muscle of the opposite side, a dorsal wall for the pelvic cavity. The ilio-coccygeus appears to be entirely absent; and in the specimens I examined I found no evidence of a muscle, situated along the posterior border of the ischio-coccygeus, corresponding to the so-called ilio-coccygeus of the rabbit or to the ventral slip found in the horse. A pubo-coccygeus, however, is present, and is represented by a narrow and slender band of muscle, which arises from the crest of the pubis, and is inserted into the distal extremity of the vertebral column.

If Hyrax is a representative of an ancient form of ungulate the presence of this diminutive yet plainly muscular pubo-coccygeus points to the existence of a similar muscle in the ancestors of the more common species of this order (ungulate), the earliest forms of which, according to Mr. Beddard, "are not by any means easily differentiated from

the primitive carnivorous mammals of that date, the Creodonta." If, therefore, the present-day Ungulates and Carnivora have come from a common stock, it is plain that the pelvic floor muscles in each, presenting such marked differences as they do, have deviated, in the course of evolution, from a common plan; and we can only suppose the changes in structure of the closing apparatus of the pelvis which have ensued have been caused by changes in habits and environment of the ancestors of the several individuals of these orders. These we must endeavour to understand, so that we may be able to appreciate the factors which have determined the existence of such an efficient closure in the Carnivora, on the one hand, and, presumably, a less effective mechanism for the maintenance of an internal pressure in the Ungulates on the other: a study which will teach us the function of the pelvic floor musculature in each.

THE TAIL AND ITS MOVEMENT.

In the foregoing survey we have described the pelvic floor muscles as arising from the pelvis and being inserted into the coccygeal vertebræ; whereas in the fish, amphibians and reptiles, we spoke of the caudo-pelvic muscles as arising from the tail and being inserted into the pelvis. This change in description is due to the fact that in the non-mammalian vertebrates the tail, at least in its proximal part, is rigid in the dorso-ventral plane, and is only freely moveable from side to side; whilst the pelvis, such as it is, with some exceptions (e.g., Crocodile), is moveable antero-posteriorly upon the sacrum. But in the terrestrial mammals, the tail, when present, is moveable in all directions, whilst the pelvis has become fixed, and thus we speak of these muscles as arising from the pelvis in mammals, since this is their more fixed attachment. There is, however, this important point to notice, that whereas in tailed amphibians and reptiles (Lacertilia), the caudo-pelvic muscles are attached to the tail at some considerable distance from the pelvis, so that they are either in the same straight line, or very nearly in the same straight line, as the recti abdominis muscles, the pull of which upon the pelvis they are thus able to counteract; in the mammals—Carnivora and Primates especially—the attachments of these caudo-pelvic muscles to the tail have crept towards its root, so that instead of being approximately in the same straight line as the recti they are placed almost at a right angle to them. The fixation of the pelvis to the spine has done away with the necessity of the earlier position of these muscles and permitted the evolution of a freely mobile tail, whilst the forcible voluntary apposition of the tail root against the perineal region—forming the perineal shutter of Professor Arthur Keith—only became possible, or, at least, was best effected, as the laws of mechanics demonstrate, by such a recession. With this mobility the intrinsic muscles of the tail are correspondingly developed, and consist of four sets of muscles, arranged longitudinally about its skeleton, two dorsal and two ventral—each dorsal and each ventral set disposed symmetrically on either side of the dorso-ventral plane. They arise from the sacrum: the upper from its dorsal aspect, where they appear to be the continuations of the longissimus dorsi of each side; the lower, from its ventral aspect. These sacro-coccygei pass distally along the tail, and are usually segmented; numerous muscle bundles arise from each vertebra to be inserted into the next, and so on to the extreme tip. Sometimes the sacro-coccygei end in long and slender tendons, which pass to the several vertebræ, as in the Lemuroidæ and Kangaroos; but even in these cases distinct muscles arise from each vertebra to be inserted into the next vertebra, all along the tail skeleton. These muscles are clearly evident in the Horse, the Dog, and the Monkey (Semnopethicus entellus), and in all the tailed mammals I have dissected. In the proximal part of the tail the dorsal set are, as a rule, more conspicuous than the ventral, presumably because of the action of gravity and of the caudo-pelvic muscles, both of which they have to counteract. They are the true tail-moving muscles, and by various combinations cause the tail to move in any desired direction.

It has been assumed, stated, and is, perhaps, almost generally believed, that movement of the tail in tailed mammals depends upon the activity—besides other muscles, such as the sacro-coccygei—of the pubo- and ilio coccygei, and of the ischio-coccygei, because these muscles arise from the pelvis and are attached to the tail; and on this assumption these muscles have been spoken of as "tail-moving" muscles, the pubo- and ilio-coccygei actually being called "flexors" and the ischio-coccygeus an "abductor." Further, the representation has been made that the prehensility of the tail in the case of the Tailed Apes and the rigidity of the tail in the case of the "Tripod" Kangaroo depend upon them. Whilst it is probably true that the contraction of the pelvic-floor muscles is increased when the tail is used as a prehensile organ, it seems rather strange to argue from this that they determine prehensility of the tail, for during any active movement whatever the contraction of the entire musculature of the body is increased in correspondence with the energy displayed in that movement. These pelvic-floor muscles are attached to the tail near its root, far away (two feet, Ateles †) from the distal, prehensile part, the grasping movement of which is, of course, effected by the intrinsic muscles. The representation that the pubo- and ilio-coccygei are responsible for this prehensility is all the more remarkable when it is known that only New World (American) monkeys, and not all these, display this faculty (Heilprin, Beddard, and others). Semnopithecus entellus, an Old World monkey, with a long and well-developed tail, has these pelvic-floor muscles extremely well developed, surely a remarkable condition of structure if these muscles determine prehensility of the tail; for in this monkey, as in all Old World monkeys, the tail is never prehensile.

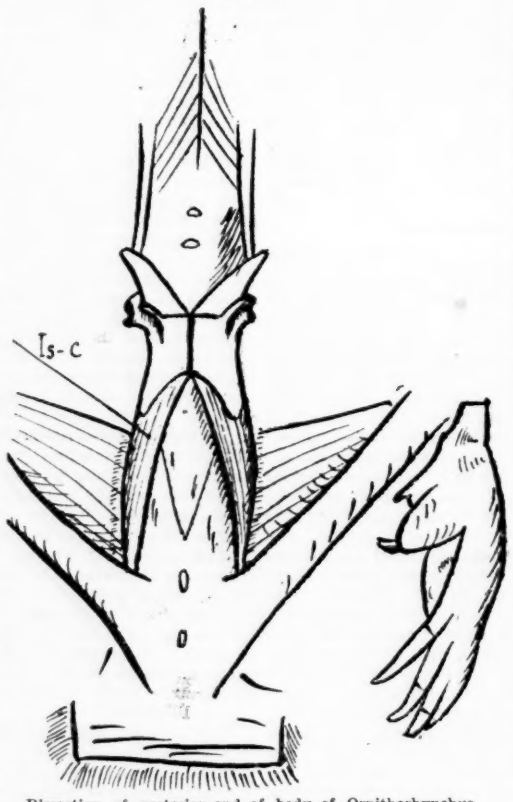
As regards the statement that these pelvic-floor muscles are tail-moving muscles—that is, that they cause a movement of the tail, implying by that word what is generally understood—we may say that movement of the tail in the horse or in the cow is as free as, or is freer than, in the dog; and that the Ungulate has as much control of its movements as the Carnivora: but whereas the pubo- and ilio-coccygei are present in the latter (Carnivora), they are completely absent in the former (Ungulate). It is therefore plain that efficient movement of the tail does not depend upon the contraction of the pubo- and ilio-coccygei since it takes place in their absence. Moreover, both Ungulates and Carnivora possess well-marked ischio-coccygei; but these can have no effect whatever over the distal and most mobile part of the tail. (Figs. 17 and 15.)

Yet the ischio-coccygeus is supposed to be the abductor of the tail, and is called the "abductor caudæ." This supposed function is deduced from the attachments of the muscle; and it is supposed that when one contracts, whilst the other is inhibited, the tail will be abducted. That such contraction on one side and relaxation on the other would result in abduction may be readily granted, although in many cases the line of traction is such that the tail would be pulled more downwards than to the side; but that such unilateral contraction takes place has not been shown to occur. In the first place the attachments of the muscle are no certain guide to its function. "It is impossible," says Dr. Pembrey,[27] "to analyse movement in the living by an examination of the points of origin and insertion of the different muscles acting upon the joints of dead subjects"—an opinion which is widely accepted. It is just as reasonable to suppose that the two muscles, one of each side, always act together; that they are synchronously and synergetically innervated, just as we believe the tranversalis abdominis of each side, and the two halves of the thoracic diaphragm are similarly innervated, as it is to take for granted that they invariably react apart, as is supposed. Abduction of the tail can as well be effected by the intrinsic muscles of the tail as its movements of flexion and extension. Indeed, the lateral extension of the ventral sacro-coccygeus on to the lateral pelvic wall in Myrmecophaga appears to be for this very purpose; for the tail, which is bilaterally compressed, has a much more extensive range of movement from side to side than dorso-ventrally, at any rate in its proximal part. At least it will be admitted that the ischio-coccygeus does not act as an abductor of the tail in Hyrax or in the Guinea-pig, in both of which it is conspicuously present; for in neither does a free tail exist. In these mammals, as in many others, Rodents especially, in which the pubo- and ilio-coccygei are not well developed, the ischio-coccygei, forming, with the interposed coccygeal vertebræ, a dorsal wall for the pelvic cavity,

† See specimen in Zoological Society's Gardens.

play a part in the maintenance of the pressure within; just as the transversalis and thoracic diaphragm play the chief part in the production of that pressure. This is supported by finding that in Ornithorhynchus (Fig. 15), in which, moreover, movement of the tail is more or less limited to the dorso-ventral plane, and in such Rodents as the Porcupines the ischio-coccygei have very extensive origins and insertions; in these species they plainly cause a similar occlusion of the pelvic outlet by an approximation of the root of the tail to the perineum, as is determined in other mammals by the pubo- and ilio-coccygei, for which end the muscle of each side of necessity must contract together. In the Carnivora and Pronograde Primates the ischio-coccygei are auxiliaries to the same end; and whilst it cannot be denied that they may act individually as abductors—for the negative requires to be shown as well as the positive—there is very good ground for the opinion that this abduction is but a secondary, unimportant, and perhaps not actually occurring function.

FIG. 15.



Dissection of posterior end of body of Ornithorhynchus, vertical view showing Is.c., the ischio-coccygeus muscle. Scale about life-size.

In this place may be completed what is to be said concerning the fallacious assumption that the function of the pelvic floor muscles is to move the tail. From this assumption it is argued that because these muscles in tailed mammals are tail-moving, when the tail degenerates these muscles, too, must degenerate, just as the muscles of a limb atrophy when the joint they should move becomes ankylosed. Since, therefore, in man the tail has degenerated, it is further argued that the homologues of these tail-moving muscles, such as they are, which he may possess, have also degenerated; that they are indeed but vestigial structures. The argument is sound but the premises are false. That the argument is sound is shown by the fact that the representatives in man of the true tail-moving muscles of tailed mammals have in him, with the loss of his tail, verily degenerated; but they are not the pelvic floor muscles, they are the sacro-coccygei; for the former, although they have undergone considerable changes, are still remarkably developed. That the function of the pelvic floor muscles is not to move the tail *per se* is shown by their evolution in the fish, amphibians and reptiles (lizards and crocodiles), which are not able to flex the tail; in these they serve to fix the pelvis, and to play a part in the production and maintenance of a frequently recurring increased visceral pressure. That they play the same part in mammals is not hard to divine, and is a sufficient reason for the discovery that, in spite of a degenerate tail, in man they still function. In tailed mammals, however, they do this in one of two ways, either by drawing the root of the tail against the perineum, or else, when the tail is maintained extended by the dorsal sacro-coccygei, by a simultaneous increase in their contraction. These actions are comparable to a backward displacement or fixation of the pelvis in the fish, amphibians and reptiles; but it would surely be a misnomer to call the caudo-pelvic muscles in these vertebrates "pelvis-moving" muscles; and similarly, to describe the muscles in mammals which cause this movement of the root of the tail as tail-moving muscles, whilst true in the narrow sense that their activity may cause, and does cause, a movement of the root of the tail, is, in the wider sense, anything but a true representation of the conditions which actually exist. It is, indeed, to this faulty application of words that the erroneous conclusion has been come to that the pubo-, ilio-, and ischio-coccygei in man have degenerated past functioning because his tail has disappeared.

THE HOMOLOGY OF THE CAUDO-PELVIC MUSCLES.—*Phylogeny of Pelvic Floor Muscles.*

Elasmobranch type.	Caudo-pelvic strand.		
Amphibian.	Caudo-pelvic muscle.		
Reptilian.	Antero-posterior caudo-pelvic muscles.		Lateral caudo-pelvic muscle.
Lacertilian.	Small dorsal.	Large ventral.	Lateral caudo-pelvic.
Chelonian.	Large dorsal.	Small ventral.	Lateral caudo-pelvic.
		Disappears in most mammals.	Persists as so-called ilio-coccygeus of rabbit, and ventral slip of ischio-coccygeus of horse.
Ancient Mammalian type (as in Hyrax).	Pubo-coccygeus.		Ischio-coccygeus.
	Persists.	Disappears in Ungulates.	
Modern Mammalian (as in Carnivora and Pronograde Primates).	Pubo-coccygeus.	Ilio-coccygeus.	Ischio-coccygeus.
Human type.	Levator ani.		Coccygeus.

THE HOMOLOGY OF THE CAUDO-PELVIC MUSCLES.

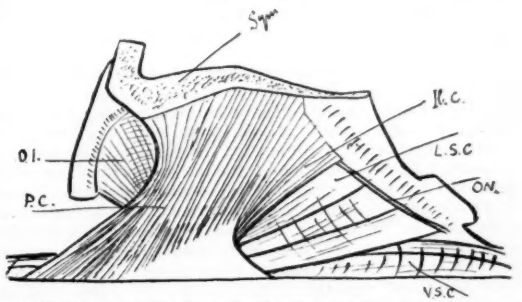
That the antero-posterior and the lateral caudo-pelvic muscles in reptiles are homologous with the pubo- and ilio-coccygei and the ischio-coccygei of mammals is, of course, difficult, or perhaps impossible, to prove. No one, however, can examine the muscles which close the pelvic outlet in such reptiles as Iguana, Emys, and Testudo, and in such mammals as the Dog, Rabbit, Kangaroo, the Monotremes, and Hyrax, and fail to notice the remarkable correspondence which occurs in their attachments, and especially in their relations to such other muscles as in mammals are known as the pyriformis, the obturator internus, and the ventral sacro-coccygeus.

There can be little doubt that the caudo-pelvic muscles in Menobranchus and Salamander maculosa, and the antero-posterior caudo-pelvic muscles in Iguana and Emys, are all homologous; but whilst in the former (amphibians) these consist of a single belly on each side, in the latter a differentiation into two distinct muscles has occurred. The more dorsal of these in Iguana is much the smaller, and appears, from the resemblance of the other much larger muscle to the caudo-pelvic muscle of amphibians, to be a new element segmented off from it. In Emys, this new muscle has become much larger; but instead of passing obliquely forwards and outwards it passes directly forwards to be inserted into the pelvic brim (pubis), passing above the ventral part of the pelvis and above the muscle arising from this part, which appears to be the homologue of the obturator internus, and which in Iguana similarly separates the two antero-posterior caudo-pelvic muscles at their insertions. It seems as though the necessity for a more efficient closing apparatus for the pelvis in Emys has caused the pelvic attachments of both the antero-posterior muscles to shift from their lateral position in Iguana to the more median position in Emys; and that whilst the more dorsal and smaller muscle in Iguana has crept inwards along the pubic bone—i.e., pelvic inlet—the more ventral and larger muscle in Iguana has crept inwards along the pelvic outlet, the two being thus separated by the (?) obturator internus, the presence of which perhaps determined the direction adopted by each. With the transposition inwards, a change in size has occurred: the former muscle, small in Iguana becoming larger in Emys; and the latter, conspicuous in Iguana becoming quite diminutive in Emys. In Testudo, this small ventral caudo-pelvic muscle of Emys has disappeared entirely, and the other antero-posterior caudo-pelvic muscle—much enlarged—is the only one present. From a comparison of this antero-posterior caudo-pelvic muscle of Testudo with the similarly disposed pubo-coccygeus of Hyrax, it seems fairly clear that the two muscles are homologous. If this be so, we must regard the pubo-coccygeus of Hyrax as representing an ancient type of the mammalian pubo-coccygeus, which, on the one hand, has developed into the more extensive muscle of Carnivora, and on the other, has suffered suppression as in the Ungulates.

It has been supposed that the pubo- and ilio-coccygeus have evolved by a lateral extension of the fibres of origin of a primitive flexor muscle of the tail, placed along the ventral surface of the sacrum and coccygeal vertebræ; and that these crept along the lateral pelvic wall towards the pubic symphysis, so that, according to this conception, the pubic fibres, presumably, are the last instead of being the first, as the condition in the Tortoise teaches, to appear. If the pubo-coccygeus itself has arisen from the antero-posterior caudo-pelvic muscles of reptiles and amphibia, it clearly cannot have arisen from a ventral sacro-coccygeus, because the ventral sacro-coccygeus does not occur in the amphibia and Lizards and Crocodiles, and only first appears in the tortoise as the tail became moveable dorso-ventrally.

That a lateral extension of the ventral sacro-coccygeus on to the adjoining pelvic wall may occur, however, is shown by its having happened in the Kangaroo and Myrmecophaga—the condition in which two species has been advanced as representing an intermediate stage in the evolution of the pubo- and ilio-coccygeus from the primitive sacro-coccygeus. But this lateral extension of the ventral-sacro-coccygeus, which in the Wallaby (Fig. 16) consists of numerous muscular bellies all ending in long tendons (in my specimen 17 at least on each side) seems to be easily and sufficiently explained by the large development of the muscle necessary in the Kangaroo for the fixation of the tail which is used as a support for the body, the lateral parts of the muscle, owing to the relatively small size of the pelvic cavity and narrowness of the sacrum, having been crowded on to the lateral pelvic wall (ilium and ischium)—an extension which is readily intelligible. It is obvious that in virtue of this lateral extension the muscle can more efficiently fix the tail upon the pelvis and give it rigidity, just as the similar lateral extension in Myrmecophaga allows this part to act to the best advantage as an abductor of the tail.

FIG. 16.



Dissection of the pelvis and pelvic floor muscles of a Wallaby. The vertebræ are not shown. Rather less than half size. Sym., Symphysis. O.I., Obturator internus muscle. P.C., Pubo-coccygeus muscle. Il.c., Ilio-coccygeus muscle. L.S.C., Iliac origin of the ventral sacro-coccygeus muscle. V.S.C., Sacral origin of the same. O.N., Obturator nerve.

That the lateral extension of the ventral sacro-coccygeus on to the lateral pelvic wall in the Kangaroo and in Myrmecophaga is not an intermediate stage in the evolution of the ilio-coccygeus in these animals is further shown by the fact that the anterior fibres of the pubo-coccygeus in both species are more obliquely placed than the posterior, and towards their caudal attachment overlap the posterior fibres, so that at their insertion they are placed laterally to them—just as in the Carnivora the ilio-coccygeus at its caudal attachment overlaps and lies lateral to the attachment of the pubo-coccygeus. Indeed, it seems that these anterior fibres really represent the beginnings of the ilio-coccygeus, which apparently has no homologue amongst the non-mammalian caudo-pelvic muscles—that is to say, that the ilio-coccygeus arises as a part segmented off from the more primitive mammalian pubo-coccygeus, the fibres of which, as they grow dorsally along the lateral pelvic wall, creep laterally rather than mesially to the obturator nerve—which may explain the fact that often this nerve pierces either the pubo- or the ilio-coccygeus (Holl), rather than passes through the interval between them. This hypothesis is supported by the fact that these muscles are always closely connected together, in many cases their complete separation being artificial; and, further, that in many rodents in which the pubo-coccygeus is relatively insignificant an ilio-coccygeus is apparently completely absent (as in Porcupine).

The proximal part of the ventral sacro-coccygeus, by flexing the root of the tail, may act as an accessory to the pelvic floor muscles; and this may explain its existence in the short-tailed Echidna and in the tailless Guinea-pig and Hyrax, but compared with the pubo- and ilio-coccygeus it is clearly at a disadvantage for such a purpose because of the more ventral attachment to the pelvic brim of these muscles.

That the lateral caudo-pelvic muscle of reptiles (Tortoise) and the ischio-coccygeus of mammals are homologous is not unlikely, for each arises from the lateral aspect of the tail, immediately dorsal to the ventral sacro-coccygeus, both in the tortoise and mammal. It is, however, impossible to trace the transition of these muscles from the reptilian to the mammalian plan since the material is not forthcoming, but it is known that the ischial symphysis separates, and thus we may suppose that as it does so the muscles inserted medianly into it become displaced laterally with each half. In the Monotremes this separation of the ischial symphysis is not complete, and in Ornithorhynchus the pelvic attachment of the ischio-coccygeus reaches ventrally quite up to, or almost up to, the symphysis, a condition which closely resembles the pelvic attachment of the lateral caudo-pelvic muscle in Testudo. (Compare Fig. 9, Lecture I., and Fig. 15,

Lecture II.) As flexion of the tail root became possible the sphincteric mechanism effected by the two lateral caudo-pelvic muscles in the reptiles was no longer so necessary, and thus their median ventral insertions were allowed to diverge, but instead they served as a powerful means of approximating the root of the tail to the pelvic outlet, and this explains their marked development in the monotremes, marsupials, and rodents. All these changes, presumably, were caused by the necessity for the frequent occurrence of considerable variations of the internal pressure, which are greatest in mammals of all vertebrates because of the presence of the thoracic diaphragm, to which pressure conditions alone can be attributed the extension of the ischio-coccygei anteriorly and their retention in such tailless species as Hyrax and the Guinea-pig.

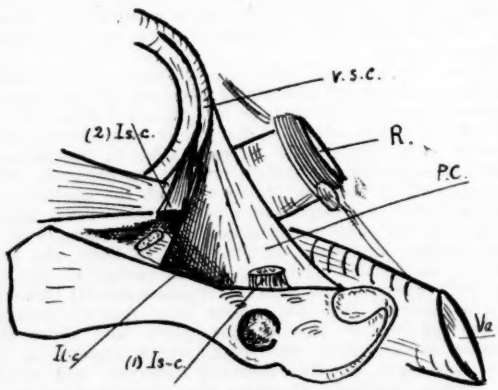
Further support of the hypothesis that the lateral caudo-pelvic muscle and the ischio-coccygeus are homologous is afforded by the presence of the so-called ilio-coccygeus in the rabbit, for this muscle is intimately associated with the ischio-coccygeus at its origin from the ischium, and part of it is inserted into the mid-line of the tail and is thus separated from the ischio-coccygeus by the ventral sacro-coccygeus. If we can imagine the ischial attachments of the muscles of each side in the rabbit displaced ventrally and inwards around the pelvic outlet so as to meet in a median ventral symphysis, and if the caudal attachments of the muscles were displaced distally along the tail into the reptilian position, we should have the condition in Emys exactly reproduced, the so-called ilio-coccygeus of the rabbit corresponding in position to the small ventral antero-posterior caudo-pelvic muscle of Emys and the ischio-coccygeus to the lateral caudo-pelvic muscle; for the relation of the two muscles to each other in Emys at their insertion into the ischial symphysis is very intimate, and is exactly comparable to the relation of the two muscles at their origin from the ischium in the rabbit. Lartschneider [21] has stated that this so-called ilio-coccygeus of the rabbit is a part of the ventral sacro-coccygeus, which he supposes has deviated laterally from its original median position on to the ischium, from which in other (and past) species it crept up the lateral pelvic wall to ultimately reach the brim and so to become the ilio-coccygeus of mammals; but he brings forward no reason to show why it should have done so, and the only evidence he adduces in support of his statement is the fact of the lateral deviation of the ventral sacro-coccygeus in Myrmecophaga and the Kangaroo, which he says represents intermediate stages in this transition, but which we have already seen can be otherwise explained. Others have assumed that this so-called ilio-coccygeus of the rabbit has descended from the pelvic brim from a supposed primary lateral extension of the sacro-coccygeus, comparable to the descent of the muscle which has occurred in man; but this seems to me to be fallacious, for there is no evidence that the factors which have caused the descent of the ilio-coccygeus in man—factors which are dependent upon the assumption of the erect posture—have existed in the rabbit. The condition in Emys seems to be the key to the understanding of these muscles, and, if so, demonstrates that the so-called ilio-coccygeus in the rabbit is homologous with the small ventral antero-posterior caudo-pelvic muscle of Emys and not homologous with the ilio-coccygeus of Carnivora and of other Rodents (as the Squirrel), and that the lateral caudo-pelvic muscle of Reptiles and the ischio-coccygeus of mammals are homologous.

THE SPHINCTERIC LAYER.

The superficial sphincteric layer of muscles, guarding the anal and urogenital orifices, is universally present in mammals; but presents wide variations in development and extent in different orders. As a rule, we may say that in those animals in which the closure of the pelvis is efficiently effected by the pubo-, ilio-, and ischio-coccygei, the sphincters exist, usually well developed, but merely as closing mechanisms for the orifices they surround; whilst in others, in which the pelvic floor muscles are either not so well developed or not so efficient, the superficial muscular layer not only forms sphincters for the orifices but in many cases, gaining extensive attachments to the pelvic outlet, plays a part in the maintenance of the internal visceral pressure. Thus in the Carnivora and Pronograde Primates the sphincters are well developed; but, often—as in the dog (Fig. 17)—are placed some considerable distance beyond the slit-like orifice formed by the posterior fibres of the pubo-coccygei (Lartschneider), and thus there is no connexion between them.

In the Rodents, in which the pubo-coccygei are not so well developed as in Carnivora, the superficial sphincteric layer is much more marked; especially in those species in which the ischio-coccygei do not compensate sufficiently to take their place. In the Rabbit and Guinea-pig, for instance, this superficial layer is conspicuously present.

FIG. 17.



Dissection of the pelvis and pelvic floor muscles of a dog (fox terrier) from without. About half life-size. P.C., Pubo-coccygeus muscle. Il.-c., Ilio-coccygeus muscle. Is.-c., the ischio-coccygeus, cut through (1) the lower part, (2) the upper part. V.S.C., Ventral sacro-coccygeus muscle. R, Rectum surrounded by sphincter. Va, Vagina.

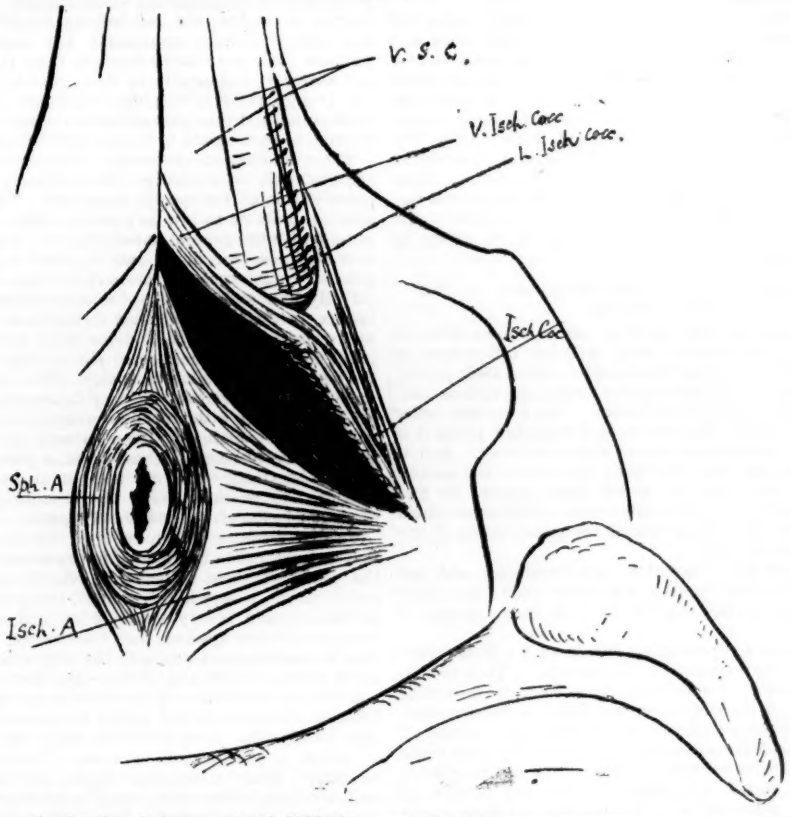
In the Ungulates, with the complete absence of the pubo- and ilio-coccygei, we find not only the sphincteric muscles remarkably developed, but also an ischio-anal muscle present which is almost as well developed as the ischio-coccygeus itself (Fig. 18). This muscle arises from the region of the ischial spine and is inserted into the terminal part of the rectum, in close association with the external sphincter muscle; some of its fibres, with some of the external sphincter muscle, are inserted into the tail; and others pass ventrally to the perineal region. According to Professor P. Thompson,[34] the ischio-anal represents a greatly developed transversus perinei muscle, and has evolved from the primitive sphincter of the cloaca. The ischio-anal of each side and the external sphincter ani together form a powerful tripartite musculature by means of which the internal pressure is safeguarded even in the absence of the pubo- and ilio-coccygei.

In Aquatic Mammals.

The sphincteric muscles are also well developed in marine mammals (Whales, Dolphins and Seals, &c.)—a condition which contrasts with their absence in non-mammalian aquatic vertebrates, and is apparently correlated with the terrestrial type of respiration and circulation, and the presence of a thoracic diaphragm. It is clear the pressure within the thorax must be less than the pressure outside the animal exerted by the medium (water) by which it is surrounded, for its lungs are of delicate structure and their blood capillaries thin-walled, so that if the air were maintained within the chest by an occlusion of the glottis only, and subjected to the pressure exerted on the rest of the viscera by the medium from without, as obtains in non-mammalian aquatic vertebrates, an obstruction to the circulation of the blood through the lungs would certainly result with consequent asphyxia ‡ This excessive pressure is prevented by

‡ The essential difference between the mammalian and those non-mammalian aquatic vertebrates which possess lungs—i.e., from Dipnoi upwards—is that whilst the blood flowing to the heart can only reach the aorta by passing through the lungs in mammals, owing to the fact that the right side of the heart does not communicate with the left side because of the growth of the interventricular septum and to the fact that the primitive efferent vessel has been completely divided into the pulmonary artery and aorta, in the non-mammalian vertebrates, this condition of the heart not having been reached, there is a free way for venous blood to the primitive aorta, so that only a portion of it passes through the lungs, whilst its adequate oxidation is provided by the possession either of internal or external gills, to which the blood passes by branches which arise from the aorta. This mechanism of respiration is not necessary in the terrestrial, non-mammalian vertebrate, because, presumably, the pressure exerted on the lung capillaries by the medium (air) is much less in these than in aquatic ones in which the pressure is

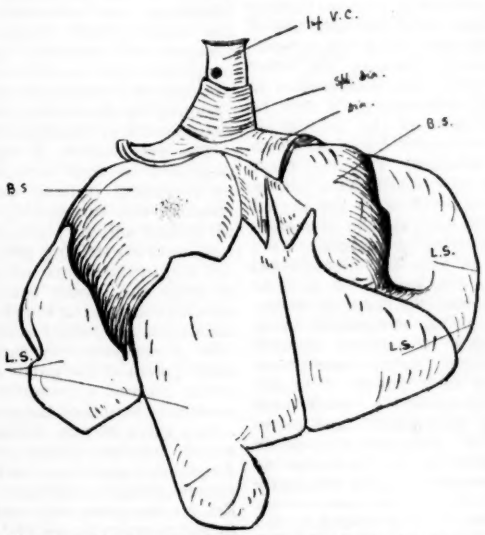
FIG. 18.



Dissection of the perineal region of a horse. About half life size. V.S.C., Ventral sacro-coccygeus muscles. Isch.Cocc., Ischio-coccygeus muscle, L.Isch.Cocc. and V.Isch.Cocc. being the lateral lamina and ventral slip. Isch.A, Ischio-anal muscle. Sph.A, Sphincter ani.

the bony walls of the thorax and by its musculatures, of which the thoracic diaphragm plays a conspicuous part, for it has, so to speak, to prevent the weight of the water bearing upon the abdomen from being transmitted by the visceral mass to the thoracic viscera and from causing an obliteration of the lung capillaries. This it does by its tonic contraction, in correspondence with which we find the diaphragm in these aquatic mammals exceedingly well developed, the central tendon itself being replaced by muscular tissue. Since, however, this visceral mass is permeated by a vascular system in free communication with the thoracic viscera, it is plain the weight of the water without and the increased contraction of the diaphragm within will tend to drive the blood from the abdomen into the thorax, because the pressure there is less, which would result in a congestion of the lungs. This is prevented by the development of that part of the diaphragm immediately surrounding the passage of the inferior vena cava into a definite sphincter-like mechanism, which by its contraction regulates the amount of blood entering the chest from the abdomen and causes a damming up of the blood within the abdomen, as is shown by the development of huge venous sacs within the liver. This sphincteric action upon the inferior vena cava and the pressure exerted by the rest of the diaphragm upon the abdominal contents is therefore very considerable, and must be at least equal to that exerted upon the animal from without. Thus the pressure conditions prevailing within the abdomen of marine mammals approach those occurring in terrestrial mammals—in which the pressure within the abdomen, except perhaps during recumbency and sleep, is always greater than the pressure without (atmospheric pressure)—and during such active expiratory acts as spouting is probably considerably increased. These considerations seem to explain the reason for the existence of the sphincter muscles in aquatic mammals; they are well marked in the Whale (Struthers[32]), and in the Dolphin are connected with

FIG. 19.



Diagrammatic representation of liver of the seal. Inf. V.C., Inferior vena cava. Sph. Dia., Part of the diaphragm surrounding the inferior vena cava transformed into a sphincter muscle. Dia., Thoracic diaphragm. B.S., Blood sacs, overlapped by L.S., Liver substance.

sufficient to necessitate another kind of breathing (ext. gills), because in them no muscular diaphragm is present to relieve by its contraction the lung capillaries from this obliterating pressure.

the rudimentary pelvis by muscles similar to the ischio-anal muscles of Ungulates.[33]

This sphincteric condition of the diaphragm upon the inferior vena cava, and the presence of the large blood sacs in the liver of the Walrus, have already been described by Mr. Burne, and are beautifully shown in a specimen taken from a seal, which is preserved in the Museum of the Royal College of Surgeons of England and which the same author recently exhibited before the Zoological Society (Fig. 19). The existence of these remarkable modifications of structure can only be explained by the aquatic habits of these animals; and they bring home to us the important and far-reaching influence which the pressure conditions within the abdomen exercise, for in these animals one of its effects at least is gross and obvious.

THE FACTORS AT PLAY IN THE EVOLUTION OF THE PELVIC FLOOR.

If now we come to ask ourselves how it is these different orders of mammals present such striking differences as regards the structure of the closing apparatus of their pelves, in all of which an efficient closure exists, the various conditions at first sight seem inexplicable. Yet a certain order obtains, so that by an examination of a dissected pelvis it is possible to say from what sort of animal it came. And if we turn our eyes from the specimens before us to the natural history of the individuals to which they belong, we find corresponding and remarkable differences—differences which are specific and vital, upon which the preservation of the individual species depends.

Let us consider the Ungulates and Carnivora, and ask ourselves, How do they compare with each other? and, How being neighbours, living side by side, do they manage to exist?

The Ungulates are vegetarians: this is such a distinguishing feature that they are called "Herbivora." They are ill-adapted for attacking, for striking, for killing, for devouring other animals, for the simple reason that these accomplishments form no necessary part of their being, and because of their comparative defencelessness they usually roam in herds or else seek security in solitary and often mountainous places. What means of attack they possess is for the purpose of defence, for the preservation of themselves and their young in times of great peril, or is but the outcome of pure savagery, and is never for the obtaining of food. In the other the essential characteristic is that they are flesh eaters; this is so significant of them that they are called "Carnivora." The ancestors of the former obtained their food from the succulent vegetation of primeval forests (cf. Tapirs) and subsequently by grazing on prairies (cf. Horses); the ancestors of the latter, by preying upon other animals, of which the most suitable as victims, because of their comparative defencelessness, were the ancestors of the present-day Ungulates (and Rodents). Thus it was determined the former should be hunted because the latter became hunters and preyed upon them. The preservation of the former from their flesh-eating opponents could only be effected by escape, and this necessitated the individuals should be capable of rapid and prolonged flight, to which their whole structure is splendidly adapted. Thus they came to use their limbs for progression only, which have become proportionately longer, so that they could cover the ground more rapidly, and unnecessary parts, such as (the possession of) several digits, necessary for clawing or grasping, have been suppressed. They acquired an easy and unobstructed respiration, essential for speed, conditioned by a wide larynx (Sir Lauder Brunton §), an easily expanding thorax, and by a continual avoidance of all movements, such as striking, which by determining a marked increase of pressure within the abdominal cavity necessitates a holding of the breath. Thus their power of vocalisation is poor, for it is impossible to utter loud and continuous sound without a considerable and correspondingly prolonged increase of intra-abdomino-pelvic pressure, which implies a fixation of the abdomen as well as of the thorax, and the necessity to do this frequently and efficiently is conditioned by the possession of good musculatures enclosing the visceral mass. The horse indeed neighs, but rarely; the bull bellows, but infrequently. These are curious sounds, apparently not easily produced, and perhaps their peculiarity depends upon this difficulty; they are scarcely comparable to those omitted by the Carnivora (cf. Dog ‖), which in this way intimidate their prey (or their opponents), and thus gain an easier victory; but the Ungulates require no such means to be successful in obtaining food.

These underlying necessities of their existence were not required only occasionally but constantly; upon them the preserva tion of the species depended. The necessity for an internal pressure as low as possible—that is, as low as consistent with the general metabolism of the animal—and an ever-readiness for flight lead to the suppression of the primitive pubo-coccygei present in their earliest ancestors (cf. Hyrax), and explains the undeveloped state of their larynx, just as their constant vigilance and the necessity for an extensive field of vision determined the aperture of their pupil to become a horizontal slit so that they might view the whole horizon simultaneously. This suppression of the pubo-coccygei permitted an easy defæcation and allowed the act to take place without the interruption of their locomotion, defæcation occurring in them as well trotting as standing still, for the absence of these muscles permitted it to occur without straining—that is, without an increase of visceral pressure, to procure which the crouching attitude is so necessary in Carnivora and the Primates.

Yet the pressure within required for an adequate circulation and expiration is provided for by several devices. Thus, the pelvis of these animals, in relation to the abdomino-pelvic cavity, is very highly placed, being situated almost at its summit, and is very obliquely inclined, so that its outlet looks much more upwards than backwards. Their bodies are nearly always maintained with the long axis horizontal; they never crouch or sit, and if they rear they do so but rarely, and only momentarily. Thus there is not the same necessity for such a closure of the pelvis as occurs in Carnivora; for they avoid those postures of the body, for the maintenance of which a considerable increase of internal pressure is essential. Their abdominal viscera are supported by the well-developed abdominal wall musculature, which slopes downwards and forwards from the pelvis towards the diaphragm, upon the tonic contraction of both of which the internal pressure conditions depend. These musculatures control their respiration: inspiration being effected by the posterior recession of the diaphragm, and a corresponding displacement of the abdominal viscera and protrusion of the belly wall; whilst expiration is determined by the lessened contraction of the diaphragm and a replacement of the viscera by the abdominal wall (Keith). Thus the thoracic diaphragm and abdominal wall musculatures react against the weight of the viscera; and when the pressure within becomes of necessity higher than usual, e.g., during coughing, the pressure impulses which are transmitted upwards and backwards to the pelvis are prevented from escaping by the closing mechanism provided by the high development of the superficial perineal musculature.

The preservation of the Carnivora, on the other hand, depended on their devouring prey, and was only possible by successful stalking and slaughter. Stalking required cunning, and thus the higher psychical centres were stirred to greater activity; slaughter necessitated the use of the fore-limbs for striking purposes, and this in turn a fixation not only of the thorax but of the whole body. The necessity to hold the breath entailed by such fixation called the muscles constricting the glottis into greater prominence; the simultaneous necessity to convert the soft and supple abdomen into a comparatively rigid mass determined the further development of the pubo- and ilio-coccygei, the presence of which allowed a powerful and efficient vocalisation, and eventually permitted the assumption of the erect posture.

Can there be any doubt that the function of the caudo-pelvic muscles, which first definitely appeared in the Amphibia in association with the necessity for an increased visceral pressure, which evolved further during the Reptilian Era for the same end, and which in Carnivora have continued to evolve in association with the development of the

§ "In animals whose motions are chiefly those of running we find the ventricular bands (of the larynx) absent, or slightly developed. But in animals where the anterior extremities are used for striking, hugging, or climbing the vocal cords are strongly developed."—Valvular Action of Larynx, Journal of Anatomy and Physiology, vol. xvii., 1882-83, by Sir Lauder Brunton and Professor J. Theodore Cash.

‖ The loud, disturbing bark of the dog is a good example. In this case inspection shows how the impulse accompanying each bark is reflected against the perineal region—an observation for which I am indebted to Dr. James Collier.

fore-limb for striking purposes, and that of the larynx for powerful vocalisation, is really a pressure one, and that it reacts in association with the abdominal wall musculature and the thoracic diaphragm to this end? If this be so, the absence of the pubo- and ilio-coccygei in Ungulates is explained.

GEOLOGICAL RECORD AND CONCLUSION.

"In support of such a conception of the evolution of the Ungulates is the remarkable richness of the geological record in the case of the ancestry of the horse. Not only is it known that the horse—like all the mammalia (Beddard)—evolved from small forms, but that it evolved from animals with five digits, and that these in the course of evolution have been suppressed. That this suppression has occurred as the result of change of habit is shown by the fact that in the early stages it was more advanced in the hind foot than in the fore, such as we can readily imagine to have been caused by the hind foot giving up grasping or clawing movements at an earlier period than the fore-foot. Thus in Eohippus the fore-foot had four digits, with a vestige of the first, whilst the hind foot had only three; it stood 11 inches in height at the shoulder and was more like a carnivorous animal than an ungulate (Lull). Owing to the increasing adaptation to speed—which like all changes was but slow—"after vast ages," the suppression of the extra digit of the fore-foot was effected, and from that time the retrogression in each has been the same. "Still," writes Lull, "it is curious to note that, among living horses, in instances of reversion to ancestral conditions, the fore-foot is more apt to exhibit well-developed atavistic toes, showing that in it the reminiscent tendencies are stronger." In connexion with this it is interesting to discover that in the Tapir, "the most ancient of existing forms referable to the Perissodactyla Order" (Beddard), the fore-foot has four digits, but the hind-foot only three. We have but the bones, and often but few of these, from which to gain an idea of the skeleton of past forms; but as the skeleton and the musculature—indeed the whole structure—go hand in hand, it is not difficult or unreasonable to suppose that changes in the soft parts were similarly affected.

The same examination and arguments may be applied to other orders of animals. In the case of the Rodents, to which Hyrax is so similar, we may suppose they escaped destruction by hiding, rather than fleeing, and to this end learnt to burrow. Such activity in them as in the Ungulates was not so necessary, perhaps explaining their small size; but it is significant to find that in those that are hunted, such as the rabbit and the hare, the pubo-coccygeus is only feebly developed or not to be found. In them, as in the Ungulates, the pelvic outlet is secured by the superficial sphincteric layer of muscle. Similarly, in the Guinea-pig the pubo-coccygeus is only present as a fine membranous-looking muscular sheet. Yet in others, which have taken to climbing, as the Squirrel, the pubo-coccygeus and ilio-coccygeus are almost as well developed as in Carnivora. So animal after animal can be instanced, showing the response of the pelvic-floor muscles to form an adequate closing apparatus for the pelvis, sufficient for the maintenance of the internal pressure conditions of the particular animal—conditions which vary from time to time and depend on many factors, all of which themselves depend on the habits and mode of life of that animal. Thus the cando-pelvic muscles of pronograde mammals, like those of the non-mammalian vertebrates, exist for one end—namely, a pressure effect, for they form an integral part of the internal pressure-regulating mechanism; and thus, in a most beautiful way, is exhibited a principle, universal throughout the vertebrates and dominating their lives, a principle becoming ever more dominant as we ascend the series, and which, had we time to consider it, we should find had reached its climax in man.

It is now my pleasing duty to acknowledge my obligations. I have to thank the Museum Committee of this College for permission to work in the Research Laboratories here and for material; I am indebted to Professor Keith for much personal kindness, help, and encouragement with the work; also to Mr. Burne, especially for drawing my attention to the structural conditions in the viscera of aquatic mammals; to Mr. Beddard, F.R.S., Prosector to the Zoological Society, for material; and finally, Ladies and Gentlemen, I have to thank you for your kind attention.

LIST OF ANIMALS DISSECTED FOR LECTURE II.

Carnivora and Pronograde Primates.—Dog (*Canis familiaris*). Lynx (*Felis lynx*). Civet (*Viverra civetta*). Seal (*Phoca vitulina*). Monkeys (*Semnopethicus entellus* and *Macacus sp.*).

Rodents.—Porcupine, tree-climbing (*Erethizon dorsatum*); brush-tailed (*Atherura africana*). Rabbit (*Lepus cuniculus*). Guinea-pig (*Cavia porcellus*). Hare (*Lepus europaeus*). Squirrel (*Sciurus ludovicianus*). Coypu Rat (*Myopotamus coypus*).

Ungulates.—Horse (*Equus caballus*). Panolin Deer (*Cervus eldi*). Hyrax (*Procavia*).

Marsupialia.—Wallaby (*Macropus bennettii*).

Edentata.—Great Ant-eater (*Myrmecophaga jubata*).

Monotremes.—Ornithorhynchus (*Ornithorhynchus anatinus*). Echidna (*Tachyglossus aculeatus*).

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TWO CASES OF POISONING BY COAL-GAS FROM A "GEYSER," ONE OF WHICH ENDED FATALLY WITH MENTAL SYMPTOMS.[1]

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ON August 28th, 1909, I was asked by Dr. K. Gordon, who was at that time acting as locum-tenens for a Sheffield medical man, to see with him a young woman presenting somewhat puzzling symptoms. The history was as follows.

The patient was a school teacher, aged 33 years. On the previous evening, about 9.30 P.M., Dr. Gordon had been hastily summoned and had found her lying unconscious in bed. The friends said that she had gone upstairs to have a hot bath and that soon after this they heard sounds as of someone groaning. The groans came from the bathroom, the door of which was locked. As they obtained no answer to their knocking and shouting, they burst open the door and found the patient lying unconscious in the bath with her head to one side, but not under water. They carried her to bed and sent for Dr. Gordon. On his arrival he found her deeply comatose, with stertorous breathing, limbs flaccid, no

[1] A paper read before the Northern Branch of the Medico-Psychological Society on April 19th, 1910.

cyanosis, no convulsions, and no pyrexia. Over the left lung râles were heard and high-pitched breath sounds. He was unable to satisfy himself as to the cause of the attack; the question of poisoning by carbon monoxide was considered, but nothing was found to indicate such a thing. The geyser in the bathroom was examined; it was properly turned off and had previously been regularly used for years without trouble. There was no smell of gas. The bad light in the bedroom at night made it difficult to see colour changes in the skin, but the face appeared rather pale than otherwise, and there were no means of examining the blood spectroscopically. She recovered complete consciousness at 7 A.M. next day. She remembered going dizzy after getting into the bath, then her sight failed and she remembered no more. There was a history that she had been getting anæmic lately, that 15 years ago she had a severe attack of chorea, and more recently a gathering in her left ear and an abscess that burst in the left side of the neck.

I saw the patient with Dr. Gordon later in the morning, and could then detect nothing definite the matter with her, except some fine crepitations over the upper left chest with impaired resonance and broncho-vesicular breathing. We ascertained from the landlady—for she was living in lodgings—that the patient had been out of sorts and overdone with her work, which had just begun again after the holidays, and that she was engaged to be married shortly. She was quite bright and well, and there seemed nothing upon which to base a definite diagnosis. Meanwhile, she was advised to stay away from work and have a complete rest.

Further developments of a very definite kind, however, soon came. On Sept. 6th, in the morning, I received an urgent message to go at once to the same address, and Dr. Gordon gave me the following history. It appeared that the man to whom our former patient was engaged had come over for the week-end to stay with his *fiancée*, and on this, the Monday, morning went to have a hot bath before leaving. As he seemed to be a long time in the bath they began to get anxious, and hearing no sounds they burst open the door. They found him lying unconscious in the bath; the bathroom smelt strongly of gas, and the geyser was turned on, but the light was out. On Dr. Gordon's arrival he found the man comatose, respiration had ceased entirely, and the pulse was almost imperceptible, but he was distinctly red instead of cyanosed. Realising that carbon monoxide poisoning was the cause, he took the necessary steps to deal with the case, and by dint of artificial respiration kept up for an hour, and hypodermic injections of strychnia and atropine the respirations returned and the pulse improved.

When I saw the patient shortly after, he was still comatose. The respirations were deep and slow, and the pulse was small and frequent. The lips were closed; the limbs were somewhat rigid. His colour was not strikingly red, but distinctly so, and in marked contrast to the usual cyanosis of asphyxia. Spectroscopic examination of the blood, which had a typical CO-hæmoglobin tint, showed the characteristic spectrum of carbon monoxide. He gradually regained consciousness and there appeared to be every prospect of his complete recovery.

Had this been the whole of the story it would hardly have called for comment or record, as similar results from defective geysers are not uncommon; but the sequel was unfortunately not so happy. On returning to consciousness the patient seemed quite dazed. This was naturally to be expected at first, but as time went on this dazed condition did not pass off, and although he had so far recovered by the next day as to be able to get up and come downstairs, his mental condition was found to be quite altered.

On Sept. 8th I was asked to see him again and found him sitting with his friends downstairs, apparently quite well, but on talking to him he was evidently confused. When asked the day of the week he hesitated for a long time, as though he were thinking about it and trying to remember, but he could not name it correctly. So also he had forgotten where he lived and named a place he had lived in years before; he did not know he was in Sheffield, but said in Manchester, where he had been previously. Unless spoken to he never said anything, but sat gazing in front of him. At night he was restless and tried to get out of bed. He was taken into the Royal Hospital under my care the same day, and a general examination showed no evidence of organic disease. He was kept in bed and his mental condition remained precisely the same as described above. On Sept. 9th he had some incontinence of urine during the night. He was not at all restless. On the 11th there was abdominal distension, and the incontinence of urine continued; the temperature also rose to 99° at night. On the 13th he received a letter which he appeared to be reading, but on being asked to read it aloud he could not do so, not even the address. When shown large print and asked to read it he frowned and appeared to wish to convey the idea that he could do so easily, but could not read more than the first word and then stopped, after which he went on staring vacantly at it without making any further advance, his eyebrows contracted, and a troubled look on his face.

This condition continued practically unchanged up to his death. The incontinence of both urine and fæces continued, and catheterisation had to be resorted to. The urine became alkaline and offensive, and later contained blood and pus. The temperature kept slightly raised, 99° to 101°. The pulse, which on admission was only 60, had reached 120 by the end of the first week, and remained about that rate up to death. On Sept. 15th the right knee-jerk was more marked than the left; toe extension was present on both sides; there was no clonus. On the 17th he was more drowsy, but slept badly at night. On the 21st he had occasional hiccough and involuntary twitching of the legs. His mental condition was more clear and he knew for the first time that he was in hospital. He died on Sept. 23rd, 17 days after the CO poisoning.

At the necropsy, made by Professor J. M. Beattie, a careful examination of the brain was made, but nothing was found abnormal to the naked eye except some slight cystic changes of the choroid plexuses. Unfortunately no microscopical examination was made.

This somewhat unusual sequela of poisoning by carbon-monoxide was complicated by some curious information afterwards obtained from the landlady, information which made it somewhat doubtful whether the mental symptoms were really due entirely to the poison. Thus, she said that when he was found in the bath there was no water in it and that he was sitting on the towel. As was stated above, the geyser gas tap was found turned on but not lighted, and the smell of gas was quite evident. The bathroom was very small, the window shut, and the escape flue of the geyser, which led through the wall to the outside, was, as the gas inspector found, practically occluded. The inspector thought it was quite possible that with this condition the gas after being lighted had been smothered out for lack of oxygen.

Naturally at the time, not knowing of the above facts, this seemed a reasonable explanation of the accident, but after the landlady's statement it seemed quite possible that the case was one of attempted suicide rather than accident. On the other hand, they assured us that prior to the occurrence he had seemed perfectly right and quite unlike his state afterwards.

The point, however, as to whether the deceased attempted suicide or not is somewhat doubtful. In a letter which Dr. Gordon kindly sent me he writes: "I saw B (the patient) when his *fiancée* became ill, several days before his second visit and mishap, and he struck me as a very sensible, level-headed man."

From the point of view of the psychologist this question seems to me a very important one in view of the after results in this case, but so far as sifting the evidence goes, it seems impossible to get further towards a solution of it. There is no doubt that mental symptoms do follow CO poisoning with considerable frequency and in great variety, both as to duration, severity, and type, even in persons previously healthy.

Dr. Alexander Scott of Glasgow recorded[2] a case in which the patient, after poisoning with gas from some ammonia works, remained semi-comatose for ten days, and on the fifteenth day became acutely maniacal for 24 hours, after which he relapsed into his previous condition for eight days longer. After this he began to improve, but his mental condition was completely altered, and except for occasional lucid intervals of a few minutes' duration, he remained continually listless and took no intelligent interest in his surroundings for more than three months after. I wrote to Dr. Scott as to the further history of this man, and he kindly furnished me with the following statement: "Shortly after the delivery of my lecture my patient was removed to an asylum, where he remained for three months and died from cerebral softening. Unfortunately a post-mortem examination was not allowed."

[2] Scott: THE LANCET, 1896, vol. i., p. 217.

Dr. Scott also quotes a case reported by Stockes[3] in which great prostration and mental weakness lasted for two months after poisoning. He likewise quotes a case privately communicated to him, in which the patient was maniacal for three days and quite insensible for eight days. He remained unable in any way to look after himself for two years, and even after that he was feeble-minded and could not undertake any responsible duties. Leppmann[4] has described a case of severe hysteria following poisoning, also one of cerebral hæmorrhage. Levin[5] reports a case in which persistent tachycardia, headache, and restlessness followed CO poisoning, although during the time the patient was in the poisoned atmosphere no severe toxic effects occurred. He questions whether the symptoms were due to the poisoning or to a pre-existing hysteria.

Izard[6] in a thesis for the doctorate gives a full account of the various nervous sequelæ of CO poisoning under the following heads: Motor: Hemiplegia, paraplegia, partial paralysis. Sensory: Subjective, pain; objective, hyperæsthesia, anæsthesia. Sensorial: Affections of sight and hearing, multiple sclerosis, hysteria, chorea, tetany. Intellect: Affections of memory, melancholia, mental confusion, chronic temporary mania, dementia, affections of speech.

Mott,[7] in a paper on carbon monoxide and nickel carbonyl poisoning, considers very fully the changes in the central nervous system produced by CO, and shows that, microscopically, very definite lesions of the brain can be demonstrated. The cortical vessels are dilated, but in the subcortical white matter the changes are more marked—viz., congestion, hæmorrhage, and the rupture of small vessels. Sometimes this rupture is into the brain substance, sometimes into the perivascular sheath. The capillary endothelium appears swollen and shows fatty changes. The most marked changes are seen in the white matter of the centrum ovale, especially in the occipital lobe.

The chief points of interest of my cases from the mental side seem to be: 1. Was this man's state of confusional insanity due to the action of CO alone on the cerebral tissue or was the mental condition beginning before the CO poisoning? 2. How does the CO act?

1. Mott[8] says: "In considering the effect of carbon monoxide poisoning being followed occasionally by mania, melancholia, confusion, and other mental symptoms, it must be remembered that many of the cases were suicidal, and therefore if not actually insane at the time probably possessed an insane and neuropathic temperament." That may be granted. But on the other hand, it is perfectly certain that some cases in which similar mental disturbances have followed CO poisoning were not cases of suicide, as, for example, that quoted above from Dr. Scott's paper, and therefore the power of the CO to produce these effects in some persons without their being insane at the time exists. Moreover, one does not (I speak here with much diffidence before those of far greater experience than myself on these subjects) find similar fatal mental symptoms in the average suicide who fails to carry out his purpose by some other means such as poison, injury, or drowning.

In my case, as we have seen, the question of suicide is somewhat complex. Whilst talking over this case with a well-known professor of jurisprudence the other day he said to me: "There is one golden rule to remember: Whenever an obscure death occurs in a person who is going to be married, it is *suicide*." In his opinion the rule should be applied in this case.

2. How does the CO act on the nervous system? There are two principal hypotheses: (*a*) That all the symptoms are produced by the anoxæmia due to the action of the CO on the oxyhæmoglobin of the red cells, with resulting deprivation of oxygen to the nervous tissue and vascular changes, hæmorrhages, thromboses, and degenerations; (*b*) Le Dosseur's theory[9] that the CO, having once saturated the red cells, becomes dissolved in the serum and attaches itself to the nerve cells and has a direct toxic effect on them. Which, if either, of these two views is correct remains to be proved.

Sheffield.

[3] Stockes: Correspondenzblatt für Schweizer Aerzte, 1888, No. 8.
[4] F. Leppmann: Aerztl. Sachverst Zeitung, Berlin, 1908, Band xiv., pp. 196-198; also p. 135.
[5] L. Levin: Med. Klin. Berlin, 1907, Band iii., pp. 146-48.
[6] L. Izard: Thèse de Lyon, November, 1907.
[7] F. W. Mott: Archives of Neurology (Claybury Asylum), vol. iii., p. 246, "Carbon Monoxide and Nickel Carbonyl Poisoning."
[8] Ibid., p. 266.
[9] Le Dosseur: Thèse de Paris, 1901.

A CASE OF

UNRUPTURED TUBAL PREGNANCY OF THIRTEEN MONTHS' DURATION; OPERATION AND RECOVERY.

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THIS case, which presents several interesting features, came under my observation on Oct. 12th, 1909. The notes of the case are as follows.

A married woman, aged 34 years, a Hungarian by birth, was admitted to the British Hospital, Buenos Aires, on Oct. 12th, 1909, complaining of a tumour in the abdomen, the cause of which was attributed by the patient to "a baby three months over time." From the previous history it appeared that the menses had always been regular. She had been married for 13 years and had had one child, a male, who was born in July, 1905, nine years after marriage. There had been no miscarriage. She had suffered for some years from a white discharge, which came on 15 days before each period. This condition persisted up to the first pregnancy and then disappeared.

The history of the present condition showed that on Sept. 17th, 1908, the menses ceased. Early in October morning sickness began and persisted up to February, 1909. In July there was a recurrence of the morning sickness at intervals during the whole month. In November the patient had a loss of blood per vaginam, passing a clot which she described as being like "a piece of lung." There was no history of passing any membrane. At this time her medical man, on being consulted, told the patient that she was not pregnant. In March "quickening" was first felt. The movements continued up to the month of June. About the same time (March) milk appeared in the breasts, continuing up to about the beginning of October, after which it disappeared. The swelling of the abdomen increased up to June, after which, according to what the patient states, it appeared to shrink. In February she consulted another medical man, who told her that she was pregnant. In June, about the time the patient was expecting her confinement to take place, she had a "show" of blood, together with bearing down pains. She called the midwife and had all preparations made for her confinement. During the pains she states that she felt the child "go down," and could feel what appeared to her to be the head above the pelvis on the left side.

On admission the patient was a well-nourished woman, with marked right internal strabismus. The circulatory and respiratory systems were normal; the breasts were flaccid, no secretion being present. The urine was acid, of specific gravity 1020; there was a deposit of mucus; albumin was present to the amount of 3 grammes per litre according to Esbach's albuminometer. On examination of the abdomen the lineæ albicantes were well marked. A tumour could be felt extending from the pelvis upwards to within 6 centimetres of the xiphisternum; it was pyriform in shape, the larger extremity being upwards and slightly to the right. In some parts the tumour presented a feeling of elasticity, whilst in others it presented distinct irregularities, hard and non-elastic. A well-marked irregularity existed on the left side on a level with the umbilicus. No thrill could be felt. In front, a little to the left of the middle line, a soft pyriform tumour could be felt extending about 7 centimetres above the symphysis pubis, slightly moveable from side to side, lying in front of the aforesaid tumour. This was presumably the uterus, as traction on the cervix uteri caused it to move. Per vaginam some whitish mucoid discharge was present. The os uteri was somewhat patulous and soft to the touch. There was a marked bulging in Douglas's pouch, which on bimanual examination gave a distinct sense of elasticity. Scarcely any movement in a vertical direction could be detected, as the part of the tumour in Douglas's pouch appeared to be fixed.

On Oct. 21st I performed laparotomy. The abdomen was opened in the middle line below the umbilicus. The tumour immediately presented itself at the opening, but owing to its large size and the number of adhesions present it was found impossible to remove it intact. In view of this the sac was incised and emptied of about 700 grammes of liquor

amnii mixed with meconium, giving the fluid a green colour. The incision into the sac having been enlarged, the fœtus was found lying with its back to the abdominal walls in position of complete flexion, the breech being upwards and to the right, the head downwards and to the left. Delivery was effected, breech first, through the incision. The cord, which was found completely thrombosed, was cut. The sac was next examined and found to be the dilated right Fallopian tube, unruptured. It was lying posterior to the uterus, having evidently fallen back in such a manner that its posterior surface became placed in apposition with the right postero-lateral surface of the uterus, to which it was densely adherent. On the posterior surface of the sac were several omental adhesions which had to be separated between ligatures. The adhesions with the

To illustrate a case of unruptured tubal pregnancy.

postero-lateral surface of the uterus were separated with some difficulty and consequent amount of oozing which, however, stopped on pressure. Finally, the adhesions in Douglas's pouch were separated, leaving the sac completely free, except for its connexion by a short pedicle with the right cornu of the uterus. A ligature having been passed round this the sac was removed. As there was some oozing consequent on the number of adhesions which had to be broken down, a long drainage-tube was passed into Douglas's pouch, and the abdominal wound was brought together by through-and-through sutures, except for about 4 centimetres at its inferior angle, where room was left for the tube. The operation occupied 45 minutes.

The patient stood the operation very well, the amount of shock being very little. She made an uneventful recovery and left the hospital on Dec. 1st, 1909. The last trace of albumin disappeared from the urine on Nov. 26th.

The fœtus was a fully developed male child (dead); the weight was 2650 grammes (about 5¾ pounds), and the length 49 centimetres. The nails were long and there was complete growth of hair on the head. No odour came from the specimen. Desquamation of cuticle was present on various parts of the body. A certain amount of lanugo and vernix caseosa was seen on the surface of the body. The sac, as already stated, was formed by the dilated right Fallopian tube, its walls being on an average 3-16ths of an inch in thickness. The placenta was situated on the posterior wall.

I refrain from making any comments on the case as the facilities for consulting the literature on the subject are not at my disposal, but I cannot help thinking that such cases must be of rare occurrence and of sufficient interest to merit publication. In conclusion, I wish to express my gratitude to my colleague, Dr. Welchli, for assisting me in taking the history of the case by acting as interpreter, as the patient spoke German only.

Buenos Aires.

INTRACRANIAL COMPLICATIONS OF MIDDLE-EAR DISEASE.[1]

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THE question is often asked, "What proportion of the general death-rate is due to middle-ear suppuration and its sequelæ?" Taking four series of consecutive post-mortem examinations in general hospitals, amounting together to 23,838 cases, it is found that 1 death in 198 resulted from middle-ear suppuration—i.e., practically 0·5 per cent. A second question often asked is, "What percentage of patients with middle-ear suppuration die of that disease or its results?" Several authors have attempted to find the answer, but they all admit that their investigations have been very unsatisfactory, owing to the elusiveness of the material. One author[2] states the death-rate at 2½ per cent.

The principal complications of middle-ear suppuration are: (1) meningitis; (2) intracranial abscess; and (3) sinus phlebitis and pyæmia. Of 973 cases reported by several writers, there were meningitis in 362 cases, abscess in 355, and sinus phlebitis in 256.

Four cases of intracranial complication of middle-ear suppuration have come under my care. Of these two were cases of temporo-sphenoidal abscess, the one not recognised during life, the other correctly diagnosed, opened, and drained, but ending fatally from septic encephalitis; the third was a case of extra-dural abscess, and the fourth one of lateral sinus thrombosis, the last two making complete recoveries. The cases were as follows, viz.:—

CASE 1.—The patient, aged 26 years, came to the Brighton Throat and Ear Hospital in November, 1903, complaining of pain in and discharge from the left ear, with some giddiness and headache. The symptoms were said to be of only a few weeks' duration. He refused operation then, but at the end of February, 1904, came into hospital, the discharge from the ear still continuing, but all the other symptoms being much improved. Some granulation tissue was curetted away from the perforation in the postero-superior segment of the membrane and from the adjacent bone. After-treatment consisted in cleansing the ear with peroxide of hydrogen, syringing, and light packing with antiseptic gauze. Earache, headache, and giddiness disappeared; the discharge gradually decreased, and the patient was discharged from the ward (to become an out-patient) on March 12th, 1904. During the night of March 13th or early morning of the 14th he suddenly became very ill and died in about 20 minutes.

At the post-mortem examination the roof of the antrum and tympanum was found to be carious and the dura mater there was discoloured. On the surface of the temporo-sphenoidal lobe in a position corresponding to this discoloured piece of dura mater was a soft yellow area of about the size of a shilling, and this led up to an abscess cavity of about the size of a walnut, with almost black walls, and full of greenish stinking pus. This cavity communicated with the descending horn of the lateral ventricle; and purulent fluid was found in the lateral, the third, and the fourth ventricles. The cerebellum, the pons, and the medulla were normal, and there was neither meningitis nor sinus thrombosis. The sudden death was probably caused by the rupture of the abscess into the lateral ventricle. During the patient's stay in hospital his condition appeared so satisfactory that no special examination was made of his nervous system.

CASE 2.—The patient, a girl aged 22 years, gave a history of suppuration in both ears since some illness in childhood. There were slight discharge from both ears and intermittent headache and earache, these being sometimes on the right, at other times on the left, side. The patient was very deaf and rather dull and stupid, but was able to earn a living. She was under treatment as an out-patient for some nine months. Then, as the earache in the right ear and the headache grew more persistent a radical mastoid operation was performed on that side. A small area of carious bone was removed from the roof of the antrum, but the exposed dura

[1] A paper read before the Brighton and Sussex Medico-Chirurgical Society on May 5th.

[2] Barker: University College Hospital, 1877–1888.

mater did not appear to be diseased. The antro-tympanic cavity was full of cholesteatoma. At first the patient made satisfactory progress. On the eighth day after the operation she complained of headache and vomited soon after her dinner, then was quite bright and comfortable. On the ninth day she again complained of headache and in the afternoon looked ill. Her pulse was found to be 60 per minute about 4 o'clock, at 5 o'clock it was only 50 per minute, and the patient was growing drowsy. About 8 P.M. the patient was very drowsy, the knee-jerks were increased, ankle clonus was present, the pulse was 50, and the right pupil was dilated and fixed, while the left was normal; there was no optic neuritis. The mastoid wound was then re-opened, more bone removed from the floor of the middle fossa, and a large abscess was found in the temporo-sphenoidal lobe. On opening the abscess a considerable quantity (unfortunately not measured) of stinking greenish fluid gushed out. A large drainage-tube was introduced. The right pupil immediately came down to normal size and next morning ankle clonus, &c., had disappeared. Two days later left hemiplegia, beginning at the face and extending to the foot, developed during the night. In order to relieve intracranial pressure bone was removed from the side of the skull over the temporo-sphenoidal region. This had no beneficial effect on the hemiplegia. The brain began to herniate through both this wound and that on the floor of the middle fossa and continued to do so for several days. The patient gradually sank and died on the twelfth day after the opening of the cerebral abscess.

CASE 3.—The patient, aged 24 years, was carried into the Brighton Throat and Ear Hospital in a comatose condition on March 18th, 1906. Practically no history could be obtained except that he had suffered from otorrhœa for a long time, that he had complained of earache and headache for three or four days, that he looked ill on March 17th, and was beginning to grow drowsy on the morning of the 18th. When brought to hospital he put his tongue out when ordered in a loud voice to do so, and answered "All right now" to questions. The head was slightly retracted and the neck stiff. Both ears were suppurating; in the right membrana tympani there was a large clean-cut perforation without any granulation tissue, while the fundus of the left ear was blocked with granulation tissue. A careful examination of the eyes, of the reflexes, &c., gave no information as to the probable site of the intracranial mischief; but as the fundus of the left ear was blocked with granulations, whereas the right ear was free, it was decided to open the left mastoid. The cortex was very dense. On opening the left mastoid antrum a drop of pus was found oozing slowly through the tegmen. The tegmen was therefore removed freely, and thus a large extradural abscess was opened. A large drainage-tube was introduced and the wound dressed. On removing the dressings next day pus was found between the dura mater and the squamous portion of the temporal bone. A disc of bone was accordingly removed in order to ensure free drainage. The patient made a slow but satisfactory recovery. When he was last seen (several months after leaving the hospital) the operation wound was quite healed, the ear dry, and the patient's health good.

CASE 4.—The patient, aged 48 years, had an attack of acute left middle-ear inflammation which came on during a bad cold in the head in the last week of November, 1909. Severe pain in the ear lasted a night, but was much relieved when the membrane ruptured and discharge commenced. As the pain, though less severe, still continued, the patient applied several very hot poultices over the ear and mastoid region, making the skin very red over these parts and even raising some blisters, thus blurring the clinical picture. On Dec. 3rd the following conditions were found—viz.: tenderness and slight swelling over the mastoid process; redness and slight bulging of the membrana tympani, in the postero-superior segment of which there was a small perforation; very little discharge; temperature 103·4° F. The patient was removed to a nursing home and a "Schwartze" operation performed. The bone of the mastoid process was soft and red, and contained here and there little pockets of pus, and pus was found in the antrum. The patient made fairly satisfactory progress for a week, but on the seventh day after operation she complained of pain in the left temple and to a less degree over the whole of the left side of the head, and of a tender swelling behind the angle of the jaw on the same side, and the temperature rose to 102°. By the evening the temperature had fallen to 99°, but the patient remained in a restless, irritable condition. On the tenth day the temperature rose to 104° and two rigors occurred. Examination of the heart, lungs, eyes, nerve reflexes, &c., revealed nothing abnormal. On the same evening the mastoid wound was reopened and the bone removed back to the lateral sinus. This was found to be full of thrombus which was just beginning to break down (a pure culture of streptococcus pyogenes was grown from this, and a vaccine prepared, of which four injections were subsequently given to the patient). The internal jugular vein was divided between ligatures, the lateral sinus incised, and the clot turned out. Free hæmorrhage occurred from the occipital end of the sinus; this was controlled by plugging. Normal saline solution was then syringed up the jugular vein, whereupon hæmorrhage began at the anterior end of the opened sinus. This was plugged and the ligature round the vein tied. The whole wound was then painted with tincture of iodine—a proceeding which was repeated nearly every day till healing was practically complete. The patient made an uneventful recovery, and is now in good health.

Brighton.

THE SPECIFICITY OF CANCER AND THE GENERAL PRINCIPLES OF ITS TREATMENT AND PROPHYLAXIS.[1]

BY ALEXANDER THEODORE BRAND, M.D., C.M. ABERD., V.D.,

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THE treatment of disease is at all times beset with difficulty even when the cause is well known, and this difficulty is greatly enhanced in the case of maladies whose cause is still undetermined. In the latter class treatment can be only empiric. The cause of cancer has not, so far, been proved to demonstration, and unfortunately no remedy of any kind, even empiric, has been discovered; but though the cause has not yet been demonstrated by the production of the originating agent (and such is not remarkable since we are merely on the threshold of the knowledge of the causation of specific disease), still it is logically deducible from the well-known facts relating to the disease.

No disease more plainly bears upon itself the impress of specificity than cancer; indeed, this is one of its chief characteristics. Its constant primary local origin in practically any situation; its invariable extension by auto-infection, evidenced by its widespread dissemination by metastasis; its constant relation to a "condition precedent";[1] the innumerable so-called "coincidences" which clearly point to what would, in any other diseased condition, be considered infection; and the countless successful inoculations which have been made, all testify to its true specific nature—i.e., to its being as typically infective a process as syphilis or tuberculosis.

Although analogy is quite incapable of proving anything, being merely a "resemblance in relations," yet even analogy is not wanting, for cancer is strikingly analogous to such parasitic diseases as syphilis, tuberculosis, and pyæmia, in spite of the fact that it possesses one peculiar idiosyncrasy of its own, inasmuch as its metastases are formed by proliferation of the transported cells of the primary focus. In all other similar diseases the infective agent is transported free, while in cancer it is conveyed encapsuled in a tissue cell. This is only another example of the extraordinary variety of parasites and their ways.

Strange to say, some non-believers in its exogenesis openly assert that cancer is a parasitic disease, but they allege that it is the cancer cell itself which is the parasite. They do not appear to be able to appreciate the obvious logical *sequitur* that, since no somatic cell can, *per se*, be a pathogenic parasite, there must of necessity be an intracellular influence

[1] The "condition precedent" is a term introduced to indicate that state of vulnerability which must exist before an individual can be successfully attacked by the cancer parasite. It is induced by degeneration of tissue from any cause, more especially from obsolescence of organs, senescence, and senility, chronic disease, continued irritation, traumatism, and by congenital susceptibility.—A. T. B.

which endues it with its malign parasitic power. In other words, there must be an intracellular parasite, and all parasites are extrinsic.

Why the extrinsic origin of cancer is not universally accepted is to me incomprehensible in the face of evident facts; but the sooner it becomes generally received the sooner is the search for the causative agent likely to be crowned with success, and the stigma of its unsuccessful treatment to be removed from the practice of medicine. The concentration of research, based upon the logical hypothesis of exogenesis, must be more likely to be successful than the misdirected efforts of those who spend time and cerebral energy, not to speak of the great waste of money, in endeavouring to prove that a specific disease can possibly have an intrinsic origin, efforts which amount simply to beating the air.

It is generally admitted that all specific diseases, *except cancer*, arise by exogenesis—i.e., by infection from without—and that there is a known or suspected infective agent or parasite in each case which, so far as our present knowledge goes, is a micro-organism, either a microphyte or a protozoon, and that these diseases are communicated directly from individual to individual, or indirectly by inanimate objects, or through an intermediate host. With regard to cancer, I am convinced of its origin also by exogenesis, and that the infective agent resides in the invaded cells, although it has hitherto escaped detection.

I do not propose here to discuss the interesting problem why the hypothetical intracellular parasite of cancer has not been discovered, but I would remind you that the *Treponema pallidum*, responsible for syphilis, has only very recently been isolated, and that the parasite of small-pox and its bovine modification vaccinia (as well as that of many other specific diseases) still remains *perdu*.

That the infective agent of cancer resides in the invaded cell appears to me to be indisputable, since a single cell from a cancerous tumour is capable of reproducing the disease in another host, as has been proved by very many successful experiments, and an infected cell in the same host is capable of establishing a fresh focus of disease in another situation, as is evidenced by the formation of metastases, and by the reappearance of the disease in, or near, a surgical cicatrix from cells left behind, or introduced into the wound by the surgeon's knife, which has set them free from the originating growth.

Further evidence of the existence of an intracellular malignant agent, or parasite, is derived from the fact that the parenchyma cells of a carcinoma have been observed by Ehrlich and Apolant to impart a malignant stimulus to the surrounding connective tissue cells, so giving rise to a true sarcoma. From this evidence it may also be deduced that one and the same species of parasite is sufficient to originate any and every variety of malignant neoplasm, such variety being determined by the nature of the tissue attacked, and limited only by the anatomical diversity of the tissues themselves. Hence the urgent necessity which exists for the detection of the elusive pathogenic principle, both in the invaded cells and in the lymph and blood.

The exact date of attack in cancer cannot be determined, for, unfortunately, there is no known initial or prodromal symptomatology, and the interval between invasion and extension by auto-infective dissemination is consequently unknown, but it is believed to vary with the situation and tissue of the primary focus and that it may be very short. It is obvious that if the date of infection could be known at the time, and if the site were accessible, immediate excision or other destruction of the invaded part would be the ideal method of treatment, for such might be confidently expected to be absolutely successful, just as syphilis can be successfully averted by the immediate destruction of its causative parasite at the site of inoculation. Such data, however, with regard to cancer, in our present state of knowledge, are available only in the case of experimental or deliberate inoculation.

The bar to success in treatment is that it is never called for until the disease has given unequivocal evidence of its existence as a distinct tumour, and even where appearances might suggest an early and purely local invasion, widely disseminated extension, hopelessly beyond the surgeon's reach, has in all probability already occurred. It should, therefore, be a surgical axiom that if any inaccessible foci—e.g., infected lymphatic glands—are known or suspected to exist, as metastases of an accessible primary neoplasm, operation with a view to the removal of the latter is not only inadvisable but unjustifiable, for such a procedure would be utterly futile for the eradication of the disease. Not only, indeed, would operation in such circumstances be futile and unscientific, but it would probably be the actual cause of increase in the activity of the malignant process, by setting free, and scattering broadcast, infected cells hitherto confined, so that the last state of the patient would be worse than the first, and even life itself would be materially shortened. The presence of inaccessible foci does not, however, negative purely palliative operative procedures, such as the relief of œdema of the arm by lymphangioplasty, as devised by Sampson Handley, or the removal of necrosed and offensive tissues.

Unless distant extension is obvious free excision of the accessible diseased area, including infected lymphatic vessels and glands and adjacent structures—e.g., muscles, and especially fascia—may be attempted as *the first line of treatment* (*vis a fronte*), the surgeon bearing in mind that every single infected cell left behind or set free by his knife is a potential agent in causing a local and general recrudescence of the disease.

Although very exceptional cases have been recorded where tumours, undoubtedly malignant, have disappeared spontaneously, and although surgical removal of such tumours has apparently cured the disease in some cases, it is more than doubtful if any operative treatment of accessible malignant neoplasms is ever successful in the complete eradication of cancer; for by the time that a tumour has been discovered far-reaching infection has almost certainly already taken place. But for the incidence of fatal intercurrent disease, the malignant process must have inevitably reasserted itself sooner or later and eventually claimed its victim.

It is a marked characteristic of cancer, and one which it shares with syphilis, that it may remain quiescent for a time. Thus, a distant metastatic focus may remain dormant for an indefinite period, the victim being lulled into a false sense of security, to light up at last into fatal activity, while the final site of the disease may be so remote from the original focus as to mislead the surgeon as to its true nature.

As a concrete example of this I may quote a case of Sir Hector Cameron's. In 1894 he removed the left mamma from the patient of a medical friend. In 1903 this patient began to complain of so-called "rheumatic" pain in her left hip and thigh, which became so severe as to cause her to go to bed and have medical attendance. One day, on getting out of bed, the left femur spontaneously fractured. Her medical attendant could find no trace of cancer in any other part of her body, but the patient died from gradual exhaustion without any evidence of farther dissemination in lungs, liver, or bone. Here some infective particle, lymph conveyed, had metastatically resided in the medulla of the femur for nine years, making no sign, until at last waking into activity by quick growth gave rise to pressure, pain, destruction of bone, spontaneous fracture, and death from exhaustion. There can be no reasonable doubt but that if this patient had died during the interval from intercurrent disease—e.g., pneumonia—she would have been declared cured by operation of her original cancerous disease. Many other instances might be adduced where recurrence, subsequent to operation on the breast for malignant disease, has occurred in other situations—e.g., the vertebræ, brain, &c.—and after even longer periods of quiescence, but that just quoted will serve as an example.

This period of dormancy suggests that all infected cells are not equally active—i.e., that the hypothetical intracellular parasite is not always in the same state of development, some cells containing it in an intermediate form, which form remains quiescent until some unknown stimulus or time and circumstances favour its further evolution. Such a hypothesis would explain many otherwise inexplicable clinical facts relative to cancer.

It is evident, therefore, that want of success after surgical treatment must be attributed either to incomplete removal or to the occurrence of distant dissemination prior to operation.

Unsatisfactory as surgical treatment is in cases of accessible primary disease, there can be no hope from the surgeon where the neoplasm is inaccessible from the first or where it has shown itself to have become so after operation.

Dark indeed must the prospect appear to the man who believes cancer to be a constitutional disease with local manifestations and having an intrinsic origin, for even the surgeon can do nothing for its removal. After all, the surgeon can only be expected to deal with what he can see, and temporarily stave off impending death threatened by mechanical causes; he cannot reach the cause. Cancer is practically ineradicable by surgical means alone, for the reason already stated. If cancer is ever to be successfully treated, the cause itself must be attacked, and this can be done only by specific means. This constitutes *the second line of treatment* (*vis a tergo*).

The surgeon confronted with a fully developed Hunterian ulcer is powerless to avert constitutional dissemination by the knife—indeed, it has already occurred. In like manner he cannot expect to eradicate cancer which has already become constitutional by local excision of its visible manifestation. The physician, on the other hand, in the case of syphilis, can view the local indication of the disease with equanimity, for he knows that he is able to combat constitutional disease successfully by proved specific remedies.

Cancer being as truly specific a disease as syphilis, and since the latter yields to internal specific treatment, it is reasonable to assume that the former will likewise be amenable to the same. In such treatment appears to lie the only hope of the victim of cancer, and well will it be for him when it has been established that this disease is due to an extrinsic cause, for recovery may then be hopefully looked for from appropriate remedies. Should the infective agent prove to be a protozoon, as is the case in syphilis, malaria, &c., and my belief is that the probability is in favour of such a parasite, then a parasiticide is indicated, similar in lethal action to those found effectual in these diseases. Among the methods of exhibiting such parasiticide kataphoresis of accessible neoplasms would doubtless commend itself.

The parasiticide specific for cancer must be sought for by experiment both on man and the lower animals; and I should imagine that investigators would find no more willing, nay zealous, coöperators than the human subjects of cancer themselves.

On the other hand, should the causal agent be found to be a bacterium, success may follow the exhibition of a cancer vaccine, prepared after the methods of Wright; or of an anti-cancerous serum. Until such serum can be procured from an individual cured of, or rendered immune to, the disease, the effect of auto-serum might be tried. This may contain a self-generated antitoxin; or, if it contains the toxin itself, its injection in small amount may act as a vaccine and stimulate the leucocytes to increased phagocytic activity.

From the foregoing considerations I would submit that the successful treatment of cancer will consist in the removal by surgical means of accessible tumours, more especially those threatening life from mechanical causes, combined with the internal administration of specific remedies, the latter being relied upon to check the further spread of disease and neutralise that already existing, by destroying the causal parasite; while inoperable disease, whether accessible or inaccessible from the first, can only be treated by specific remedies and such non-operative mechanical means as fulguration, X rays, radium emanations, kataphoresis, &c.

No less important, or even more important, than the curative treatment of cancer is its prophylaxis. It is a truism that "prevention is better than cure," although this naturally is not the dominant sentiment of the sufferer from the disease.

Everything that tends to the encouragement of the "condition precedent" should be avoided. We cannot, indeed, stay the flight of time, that *edax rerum* which brings in its wake senescence, senility, and the obsolescence of organs, which play so important a part in the incidence of cancer, but these may be greatly mitigated by a strict observance of all the well-known laws of health.

Cremation of the cancerous cadaver is imperative, since such would remove a very obvious risk of perpetuation of the cause of the disease when earth burial is resorted to—e.g., by the action of earthworms, which convey soil from a depth of 6 to 8 feet to the surface, and by the contamination, by percolation, of the sources of water-supply. All dressings of cancerous wounds, all discharges and dejecta from cancerous patients should be destroyed, preferably by fire. There should be thorough disinfection of all rooms and houses inhabited by those suffering from, or who have died from, cancer. Intimate personal contact with the diseased should be avoided as far as possible. Personal cleanliness should be scrupulously observed, especially in the washing of the hands before eating, and in the preparation of food. There should be perfect sterilisation of all water and food partaken of, especially when the latter is eaten in an uncooked condition; and the contamination of any food by the lower animals, or by flies, should be prevented.

If there is any truth in the allegation that the earthworm is an intermediate host, and that the soil is one *habitat* (water being another) of the parasite, the mere idea of eating raw vegetables, however well scrubbed and apparently clean, becomes repulsive, and is calculated to induce one to ponder over the desirability or otherwise of total abstinence from all uncooked fruits and vegetables which lie on or in the surface of the ground.

Mr. J. Bland-Sutton, in his recent work "Cancer Clinically Considered," says:—

> The frequency with which cancer attacks the large intestine is in favour of those who believe that cancer is due to a micro-parasite, probably something which is taken in with uncooked food or with water. Indeed, I feel so strongly on this matter that for many years I have avoided eating all sorts of uncooked vegetables. Much as I enjoy salad with my chicken, or my cheese, I do not touch it. However clean your celery may appear to be, if you pull aside the stalks immediately round the centre, which is about the only part worth eating, you will see that there remains some dirt which has not been washed away. One feels deeply thankful that most of the food eaten by mankind is cooked. Partially cooked or "underdone" meat carries penalties in the way of entozoa, and Metchnikoff says that "entozoa may serve as gates of entry for the hypothetical parasites of carcinoma." Food and water are essential to life, and it is undeniable that they are the frequent purveyors of disease, and that minute animal parasites are our daily messmates and table companions, though their presence is sublimely ignored by us. In Bebla's opinion the probable vehicle of infection in cases of cancer occurring in Luckau in Germany was the uncooked vegetables.

Finally, notification of all cases of cancer should be enforced.

Driffield.

ON THE DEMONSTRATION AND STUDY OF SPORES IN THE SCHIZOMYCETES.

By A. F. STANLEY KENT,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF BRISTOL.

THE demonstration of spores within the cell body of the schizomycetes has been attempted in different ways by different workers. At the present time, however, and even by modern methods, the process is tedious and uncertain, and, as is often the case with methods which do not depend upon accurately known chemical and physical processes, the preparation of satisfactory specimens calls for an excessive expenditure of time and care. Moreover, some of the methods which have been proposed result in a considerable amount of damage being done to the rest of the cell—a damage which may seriously impair the usefulness of the preparations, whilst investigators working upon spore formation find the prolonged methods necessary a great drawback.

Bearing these facts in mind, and happening to be working on the subject some few years ago, I considered the various processes used and the explanations given of their supposed rôle, when it occurred to me that the old idea of there being an envelope, or film, of a fatty nature in the neighbourhood of the spore, shutting it off from evaporation and from contact with aqueous solutions, whilst providing some explanation of the difficulty of decolourising already stained spores, might also give some indication of a method for enabling the stain to penetrate more easily. My experiments were often interrupted, but the indications given above being followed, a method was ultimately elaborated which enabled the more easily stainable spores to be coloured readily, whilst in the case of those which usually are coloured only with difficulty, the process is rendered easier.

The method at first consisted in the solution of the staining agent in a fatty solvent, and some success was obtained in this way, but soon another procedure was adopted and a different principle employed. The peculiarity of the method consisted in the employment of an alkali for

the purpose of rendering the resisting envelope of the spore permeable and readily penetrated by the staining solution. The desired result was found to be actually brought about by the alkali employed, and the resulting preparations showed the spores sharply stained, whilst the cell body was uninjured and might readily be tinged with a counter stain if necessary.

Briefly, then, the process consists in preparing a film in the usual manner and fixing it by heat or by other means. Solution of sodium hydrate is then flowed over the film and allowed to act for some seconds, after which the still wet (and alkaline) film is flooded with carbol-fuchsin solution and heated as usual. This heating, which adds considerably to the intensity of the staining, need not be at all prolonged, a few minutes being amply sufficient. It will be found that a precipitate is produced by the soda solution in the carbol-fuchsin stain, but this may be neglected, as it will to some extent disappear as the temperature rises, and in any case does not appear to damage the preparation.

The ordinary 25 per cent. hydrochloric acid is next flowed over the film and allowed to act for a second or two, then washed thoroughly off and the film flooded with 1 per cent. aqueous solution of methylene blue, which may be slightly heated if an intense stain is required. Thereafter nothing remains but to wash, dry and mount as usual.

This method has given good results in my hands and has been used in some research work carried out in the University of Bristol by Mr. A. E. Lechmere, who tells me that he has found it of service.

The exact strength of the soda solution which gives the best and most constant results is being ascertained, but it has been found possible to vary the strength within wide limits without spoiling the result.

Bristol.

A CASE OF CEPHALIC TETANUS (KOPF-TETANUS OF ROSE).

BY C. V. KEBBELL, M.R.C.S. ENG., L.R.C.P. LOND.,
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THE patient, a boy 5 years old, was admitted to the Royal Berkshire Hospital under the care of Mr. W. J. Foster, assistant surgeon to the hospital, on Sept. 22nd, 1909, as the result of an injury occasioned by a fall from a wagon. A large flap of the scalp had been torn from the skull, exposing a portion of bare bone about one square inch in extent, situated over the parietal region of the right side in the neighbourhood of the parietal eminence. The whole area was covered with mud, which was ingrained into the tissues. Apart from this there was no evidence, on admission, of any cerebral disturbances or fractured bone. On the 29th it was noted that the child's condition was satisfactory and the wound was granulating up. On the following day, however (the 30th), slight facial paralysis became evident on the right side. Four days later this paresis was more marked, and slight head retraction with rigidity of the arms and legs was noticed. The child lay quietly in bed but resisted movement of his limbs. The possibility of septic infection of the meninges or a cerebral abscess was discussed, and it was decided to trephine.

The operation was performed by Mr. Foster, and an area of bone was removed at a point three-quarters of an inch above and behind the right external auditory meatus. The meninges bulged and pulsation was slight. No exudation was found on incising the dura mater, and a grooved director passed into the cerebral tissue and downwards towards the base of the brain located no pus. On the day following the operation (Oct. 5th) three spasmodic attacks occurred, during which the patient was quite conscious. There was also now some rigidity of the abdominal muscles between these attacks, and tetanus was diagnosed. Ten cubic centimetres of the antitetanic serum were injected, and the child was transferred to the isolation block.

I saw the patient on Oct. 7th. He was quite intelligent and took interest in his new surroundings. There was marked right-sided paralysis of the face. The masseter on both sides was very tense, and the interval between the upper and the lower teeth was just sufficient to admit the handle of an ordinary scalpel. The pupils were equal and rather dilated. Respiratory movements were embarrassed and "stuffy." The abdominal muscles were very rigid, the recti presenting a board-like resistance; the arms could be freely moved, but movement of the legs, which were kept flexed, was resisted. The knee-jerks could not be satisfactorily obtained, and there was no Babinski's sign. In the evening of the same day I was called up to find a spasmodic attack in full effect. The body was arched (opisthotonos), the abdominal muscles were tightly stretched, the face and lips were blue, and the pupils were widely dilated. The jaws were firmly clenched, and the child was conscious and evidently terrified at his condition. As it was urgently necessary to relax the spasm I administered chloroform. The patient objected to the smell of the anæsthetic, and the spasm for a few seconds increased in intensity, relaxing, however, again after a short interval. The abdominal muscles became flaccid, the colour improved, and the child slept for one hour afterwards. One minim of the injectio morphinæ hypodermica was given subcutaneously. Towards early morning of the next day (Oct. 8th) it was again necessary to induce anæsthesia, and several spasmodic attacks occurred during the day, making the patient very exhausted. He sweated profusely after each one, and the pulse showed a tendency to intermit. Brandy (half a teaspoonful four-hourly) was ordered, and a mixture consisting of potassii bromidi gr. v., chloral hydratis gr. ii., aquam menthæ piperitæ ad ℥ii. every four hours was prescribed. Ten cubic centimetres of the serum were injected in the evening. This occasioned a spasm and so was completed under chloroform. On Oct. 9th eight spasms were noted, three severe enough to call for anæsthesia. The effect of the inhalation of amyl nitrite was tried, but without much success. Oxygen was of use in improving the patient's colour, when the intensity of an attack lessened. The antitoxin was again given on this day. The usual procedures of darkening the room and absolute quiet were enforced, but although some of the attacks could be attributed to external stimulus, others occurred without any evident ascertainable cause. On the 10th and 11th antitoxin was repeated, and four spasmodic attacks occurred on either day. It was necessary to give nutrient enemata for some days as it was now difficult to get the child to take nourishment, owing to a tendency of the pharyngeal muscles toward spasm when swallowing.

On Oct. 13th, eight days from the onset of the first spasmodic seizure and 14 from the day on which facial paralysis was first seen, I noted that the severity and frequency of the spasms were less, though at intervals a sudden jerking of the body with clenching of the jaw would occur. The condition of the right side of the face continued about the same. During the next week improvement continued, and there was only one severe spasmodic attack. The occasional clenching of the jaw was still present, but the mouth could be opened wider. The scalp wound was slowly granulating up. No alteration in the facial paresis could be seen. The child was bright and intelligent, and interested in his own improvement. Tinctura strophanthi (1 minim) was added, and chloral was omitted from the mixture, as the pulse tended to be weak. The only complaint was of some pain in the throat on swallowing. After Oct. 22nd no twitchings or spasms occurred. Some rigidity of the jaw muscles continued till Jan. 1st, after which date the mouth could be fully opened. The muscles of the right side of the face did not regain their power, however, for a longer period still, and it was not until the middle of January, a little over three months from the onset of symptoms, that they could be said to be again quite normal. The child has been seen as an out-patient quite recently, and was in excellent health.

The interesting point in the above case is the association of facial paralysis with tetanus. This condition is described by Professor Osler under the name of "cephalic tetanus or Kopf-tetanus of Rose." This, he states, "originates usually from a wound on one side of the head, and is characterised by stiffness of the muscles of the jaw, and paralysis of the facial muscles on the same side as the wound, with difficulty in swallowing." All these points were displayed in the above case. Rose and Carless state that the paralysis is due to an ascending neuritis of the facial nerve which becomes compressed in the aqueduct of Fallopius. The mortality in the acute forms is given as four recoveries out of 45 cases. In the chronic forms eight out of 32 succumbed. The condition is uncommon. Osler states that the use of the antitetanic serum

is disappointing in man. Altogether five injections of 10 cubic centimetres were given in this case. Improvement appeared to follow the fifth injection, but it is difficult to say whether it was due to the beneficial action of the serum or to a natural tendency toward recovery.

The origin of the paralysis of the facial muscles may be suggested as due to other causes apart from tetanus. An isolated facial palsy, due to involvement of the cerebral cortex or internal nucleus, as a result of injury is uncommon. There is usually hemiplegia as well. Damage to the nucleus of the seventh nerve from hæmorrhage is likewise unusual. There were no signs of concussion or affection of other nerves to suggest a fracture of the base of the skull. A very localised patch of meningitis involving the seventh nerve, or hæmorrhage, affecting the face centre only from contre-coup, might be possibilities. There was no evidence of any bruising or damage at the level of the stylo-mastoid foramen to occasion an injury of the nerve there. There were no signs of ear disease, or involvement of the eighth nerve, and paralysis of the face of this duration due to cold is not common, so far as I have noted, in children. After considering all the above points, I think the diagnosis was correct, and that this was undoubtedly an unusual form of infection with the tetanus bacilli—cephalic tetanus.

My thanks are due to Mr. Foster, who very kindly gave me permission to publish the particulars of this case.

Reading.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

The Pancreatic (Cammidge) Reaction.

A MEETING of this section was held on May 24th, Dr. J. MITCHELL BRUCE being in the chair.

Dr. P. J. CAMMIDGE read a paper entitled "A Consideration of the Results of the Pancreatic (Cammidge) Reaction in 1475 Cases." The results of the analysis of over 1500 specimens of urine from 1475 cases were considered, particularly with reference to the so-called pancreatic reaction. They were divided into nine groups, according to the pathological findings and clinical condition:—(1) Acute or subacute pancreatitis, 17; (2) chronic pancreatitis, 859; (3) pancreatic calculi, 4; (4) pancreatic cysts, 4; (5) pancreatic infantilism, 1; (6) cancer of the pancreas, 73; (7) miscellaneous, 467; (8) normal, 50; (9) cases re-examined after operation, 55. The conclusion arrived at was that, while the "pancreatic" reaction in the urine was not pathognomonic, its presence was strongly suggestive of active degenerative changes in the pancreas, and when taken in conjunction with the history, symptoms, and an analysis of the fæces, the findings are of very considerable clinical value. Clinical experience and the results of experiments point to the reaction being due to the destruction of substances with a glyco-nucleo-proteid content, and, since the pancreas contains nearly five times as much pentose as any other organ of the body, calculated as percentage of the dry weight, and it was more loosely combined than the corresponding sugar in other tissues, the reaction was obtained with much greater frequency, and more constantly in lesions involving degenerative changes of that organ than in others. The affections that were likely to give rise to a positive reaction were usually so readily differentiated from pancreatic disease clinically, and by an examination of the fæces, that there was little or no risk of confusion. No reaction was obtained in most affections in which the pancreas was not involved, also in quiescent cirrhosis of the gland, some cases of pancreatic calculi and cysts, and in 67 per cent. of cases of cancer of the pancreas, since in those there was no active degeneration of the gland substance to set free the glyco-nucleo-proteid content of the cells, unless there was also a secondary inflammatory change due to pressure effects or obstruction of the duct. In conclusion, Dr. Cammidge said that the published experience of many observers, both clinical and experimental, tended to confirm those conclusions and to show the clinical value of the test and its dependence upon inflammatory and destructive lesions of the pancreas.

Dr. CAMMIDGE also read a paper on the Diagnostic Value of an Analysis of the Fæces in Disease of the Pancreas.—In the ensuing discussion Dr. MITCHELL BRUCE, Dr. H. D. ROLLESTON, and Dr. A. F. HERTZ took part, and Dr. CAMMIDGE replied.

MEDICAL SOCIETY OF LONDON.

Annual Oration and Conversazione.

A MEETING of this society was held on May 23rd, Dr. SAMUEL WEST, the President, being in the chair.

The annual oration was delivered by Mr. W. H. BATTLE, who took as his subject Internal (Intraperitoneal) Injuries. He said that if it were possible to ascertain the exact part of the body struck by the force which caused the injury, then one could make an approximate guess as to the organ ruptured, for it was generally lying beneath, and incision over that area gave direct access to the damaged structure. In all cases it was advisable to follow a certain routine in the examination of the patient. Ascertain when the last meal was taken, when the bladder was emptied, and if the patient was in good health before the accident. Inquire as to the position and extent of pain, and then examine the abdomen carefully for dulness and see if that is fixed or shifting. They will then have found out if there is rigidity of the muscular wall, whether it is general or local, and would know the amount of tenderness, its position and extent. The state of the pulse and also the temperature must be noted. From the practical point of view, they need not consider those cases which were admitted with intense shock from which they never rallied, patients in whom there was evidently a gross lesion but one which it was beyond surgical skill to attempt to remedy. The others could be arranged in fairly typical groups as they presented themselves clinically. In the first of those there were shock, acute abdominal pain with great tenderness over the part struck, and board-like rigidity of the abdominal wall. All those symptoms were present, but they varied somewhat in their intensity; at one time shock was the main thing, at another time it was the pain, and so on. With those there should be present a certain amount of localised dulness on percussion. In the second group there was no evident shock, and perhaps the patient walked to the hospital or went home, congratulating himself that he has had a "narrow escape." He may have vomited soon after the accident which made him feel sick, but there were no marks of injury on the abdominal wall, or they were but slight. He had considerable local pain, and there was rigidity of muscle sometimes confined to the side of the abdomen which was struck. There was tenderness on pressure and perhaps localised dulness, but he felt that he would soon get over it. In a third group the symptoms were rather indefinite; there was a history of abdominal injury, probably of the kind which sometimes produces a rupture of the intestine, but the shock was trifling, there was no vomiting, local pain was slight or absent, there was little tenderness, no rigidity of muscle, whilst percussion gave no change in note. After a variable time there might be a rising pulse with that change in facial aspect which indicated to the experienced eye the presence of grave peritoneal inflammation. It might not be easy to say at what moment that commenced, but "a change had taken place." It might develop after an attack of vomiting. In some instances where there was a definite history of the kick of a horse it would be judicious to operate at once, as recommended by Mr. Bernard Pitts, without waiting for symptoms. Should the escape of intestinal contents be very restricted, possibly in consequence of the smallness of the perforation, the symptoms might be limited to occasional sickness, with uneasiness in the abdomen, gradual distension and general tenderness, caused by a slowly extending inflammation of the peritoneum which might become localised, and result in the formation of an abscess. It must be remembered that a general meteorism might follow an injury to the abdomen without any rupture of the intestine or internal organ. A rigid condition of the abdominal muscles was a very important sign; it practically always meant serious underlying damage. Cases in which it

was present might in rare instances recover, but it was a sign which should be regarded as of great value, and in most as an urgent indication for operation. Dulness on percussion had been ascribed to escape of intestinal contents; this might be so, but it was rare to find much feculent fluid present when the abdomen was opened soon after an injury, although blood might be found which had come from a rupture of the mesentery or a tear of the omentum. If there was a history of localised contusion, such as that produced by a kick, and in addition to dulness under the part struck there was also fluid in one or both flanks, the mesentery was torn, and the indications for operation were evident to repair the injury and to prevent further bleeding, which might have placed the gut in danger of gangrene by deprivation of its blood-supply. When the injury had been less localised, such as that resulting from a fall or from being run over, it was possible that there might be a complication in the shape of rupture of one of the solid viscera, in addition to damage of the bowel and its mesentery. It had been observed that local tenderness was usual, but there might also be a sharp superficial tenderness extending from that towards a dependent part, indicating the direction taken by fluid of great irritative properties in its course to the flank or to the pelvis. Another symptom of importance was a marked rise of temperature within a short time of the injury. Mr. Battle considered that the loss of liver dulness as a sign of ruptured intestine was useless. It was rarely seen. Emphysema of the sub-peritoneal tissue was met with mostly in cases of rupture of the duodenum during the course of an operation for that lesion. The mortality was less when early operation was performed, but the best results were obtained when it was done between 7 to 12 hours after the accident. By operation in cases of ruptured intestine was understood abdominal section, a search for the injured gut, and its repair by suturing. In some it might be necessary to excise the contused and lacerated part and perform an anastomosis. Mr. Battle, in discussing rupture of the spleen, said that Dr. White-Hopkins, who had spent some years in Sarawak, had kindly permitted him to show them a weapon which he (Mr. Battle) called the "lethal cross," but the real name of which was "Larang" (meaning forbidden) in Malay. It was carried with the shaft up the arm of a long sleeve, clutched between the second and third fingers at the cross, leaving the knob extending. It could not be seen in consequence of the sleeve. The assassin waited for his victim at night, and accosting him dealt him a sudden and unexpected blow in the abdomen, and was not particular as to the position in which he struck. The victim without a groan fell dead on the spot. His pockets were rifled, and nothing more was known of his assailant.

The conversazione which followed the oration was attended by a great company of friends and members of the society, the official reception by the President taking place on the spacious landing between the library and the lecture hall. In the course of the evening Sir William S. Church was admitted an honorary member of the society.

EDINBURGH OBSTETRICAL SOCIETY.

Suprapubic Transverse Fascial Incision.—Bacillus Coli Infection of the Urinary Tract in Pregnancy.

A MEETING of this society was held on May 11th, Dr. F. W. N. HAULTAIN, the President, being in the chair.

Professor J. A. C. KYNOCH (Dundee) read a paper on Suprapubic Transverse Fascial Incision in Gynæcological Cœliotomy. The linea alba, he said, although the weakest part of the abdominal wall, is still the favourite line of incision, doubtless on account of its sparse vascular and nerve supply. Many operators are quite satisfied with the results. Howard Kelly, with an experience of over 2000 cœliotomies through the linea alba, has no reason to distrust it on the ground that the cicatricial union is less firm and secure than in those cases where the incision is lateral to the median line. To lessen the tendency to hernia other operators have employed an extra-median incision along the linea semilunaris; but Mikulicz has shown that such an incision, dividing the terminal branches of intercostal nerves, may result in paralysis and atrophy of the corresponding rectus muscle and thus favour the development of subsequent hernia. Dr. Kynoch has followed Pfannenstiel's method of slightly curved transverse incision about six centimetres above the pubes, through the skin and anterior sheath of both recti muscles; the anterior sheaths are bluntly dissected off the recti muscles, the recti are drawn aside, and the peritoneum is divided externally to the linea alba. After closing the wound the result of such an incision is that the transverse fascial wound is protected by intact muscle. The advantages claimed are chiefly the avoidance of post-operative hernia; the reports of Pfannenstiel, Doederlein, Menge, and others support this. The field of operation, especially the lateral and anterior part of the pelvis, is very accessible; the muscles are readily drawn asunder. Patients can rise sooner, as the intra-abdominal pressure does not to any extent affect the skin and fascial incision. This method is suitable for small tumours, cysts of moderate size, non-suppurative diseases of the appendages, and ventro-fixation of the uterus. Cases suspected of being infective are unsuitable. With few exceptions it is the method of opening the abdomen most frequently employed in German cliniques, and in many it is used for large tumours.—The PRESIDENT, Dr. A. H. F. BARBOUR, and Dr. W. FORDYCE discussed the paper, and Professor KYNOCH replied.

Dr. E. NAPIER BURNETT (Newcastle-on-Tyne) read a paper on Bacillus Coli Infection of the Urinary Tract complicating Pregnancy. After detailing four cases met with in his practice, Dr. Burnett stated that the acute disease often begins with rigors and a high temperature, accompanied with diffuse abdominal pain which soon becomes restricted to the right renal region; nausea and vomiting are not infrequent. The tongue is furred and constipation is usually present. Bladder symptoms, such as frequent micturition and dysuria, may be present, or only renal disturbance with few, if any, bladder symptoms. The urine is scanty and high-coloured. The abdominal muscles are rigid on the right side. The patient complains of pain possibly in three sites: most commonly over McBurney's point, over the bladder if that organ is affected, and, what is characteristic though less frequently present, extreme hyperæsthesia over a wide area in the region of the right kidney. Per vaginam, the bladder may be tender over the whole of the posterior wall, but especially over the trigone area. In many cases there is found a very tender spot just at the site of entrance of the right ureter into the bladder; the ureter may be thickened or dilated and readily palpable. The temperature may rise to 104° F. and fall in the morning to 99°; after a few days it may remain continuously high, indicating some involvement of renal tissue or of the opposite urinary tract. The patient with continuous high temperature develops a poisoned look, and more or less delirium may be present. The urine may have no characteristic smell, certainly no fæcal odour and no ammoniacal odour, as the B. coli has no power to split urea. The urine is most frequently turbid, due partly to mucus from the associated catarrh and also to flakes of lymph, shreds of epithelium, and pus cells. In simple cases with no inflammatory lesion and where the organism is not very abundant the urine may be perfectly clear. The urine is invariably acid, at least when the B. coli is present in pure culture, but if the infection is mixed with staphylococci or streptococci then the urinary reaction may be neutral or alkaline. The reaction of the urine does not depend on the site of the inflammation, but on the nature of the organism causing the infection. Albumin in small quantity is usually present from the admixture of pus or blood. The only method of definitely distinguishing the source of pus is a careful study of the clinical symptoms, with a cystoscopic examination and ureteral catheterisation. The course of the acute disease, if untreated, extends to several weeks, with a deepening toxæmia and repeated rigors, and possible abortion. In chronic cases the onset is more insidious; malaise is present, with muscular pains and persistent irregular temperature; bladder symptoms may be slight or absent. Pain and tenderness of the structures overlying the kidney and ureter are always present, but not nearly so marked as in acute cases. Headaches and general ill-health, with some albuminuria, may lead to the diagnosis of a pre-eclamptic state unless a careful examination of the urine is made. Slight cases are often overlooked. A pregnant woman complaining of intermittent attacks of lumbago with griping pains, especially over the right side, should have her urine carefully examined for B. coli infection. In the acute form the disease may be mistaken for acute appendicitis; one of Dr. Burnett's cases had been advised by a surgeon to be

operated on for appendicitis, and in two others he had seen the abdomen opened for appendicitis when a healthy appendix was found and the cases proved afterwards to be B. coli pyelitis. Tenderness over McBurney's point should not be considered pathognomonic of appendicitis. The condition may also be mistaken for acute intestinal obstruction, acute cholecystitis, malaria, pneumonia and pleurisy, or renal and ureteral stone. The treatment consists in rest in bed, attention to the bowels, bland diet, and diluent drinks. The most efficient drugs are alkalies; the citrates and acetates of potassium and sodium, when given in large doses frequently, exert a distinct control over the disease and cause a rapid subsidence of the most acute symptoms. Even in chronic cases the administration of these salts produces a marked diminution of the bacilluria. Urotropin and helmitol seem to have little effect on the disease if it is due to a pure culture of B. coli; but if mixed infection is present these drugs are of distinct value and ought to be used freely. Salol, sodium benzoate, and boric acid are not so satisfactory in their results. Serum treatment has not produced very decided results; one observer obtained valuable results in 12 cases from a vaccine prepared according to Wright's directions. A recent line of treatment is douching the pelvis of the kidney with an antiseptic through a ureteral catheter. In very severe acute cases where the ordinary palliative treatment has been unavailing, the pregnancy should be ended by operation rather than have recourse to a nephrotomy.—The PRESIDENT, Dr. JOHN THOMSON, Dr. BARBOUR, Dr. H. M. CHURCH, and Dr. FORDYCE made remarks on the paper, and Dr. BURNETT replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF ANATOMY AND PHYSIOLOGY.

Exhibition of Specimens.

A MEETING of this section was held on April 29th, Dr. T. H. MILROY, the President, being in the chair.

Professor JOHNSON SYMINGTON exhibited a number of skiagrams illustrating the Development of the Teeth in Primates, and also the relation of the teeth to the maxillary antrum.

Dr. L. L. CASSIDY exhibited a specimen of Superfœtation taken from a cat. It showed in one horn of the uterus a well-developed embryo 5 inches long and 6 or 7 weeks old. It possessed a fully formed placenta, an umbilical cord 4 inches long, and membranes complete. The other horn contained a much smaller fœtus 2 inches long, which was enveloped in its own bag of membranes. The uterine body was 1 inch long, ½ inch broad, and 1-16th inch in thickness. A septum divided it into two parts, extending to the external os. Decidua lined both horns. The right ovary showed a well-marked true corpus luteum, which was obviously of recent date, and accounted for the second embryo. The left ovary had a true corpus luteum, which was distinctly older than the one on the right side. The interest of the specimen lay in the fact that there were two embryos, one occupying each horn, and showing a great difference in period of growth. The smaller by no means represented a "blighted ovum," as both microscopically and on section it appeared quite normal. Dr. Cassidy said that superfœtation was of not infrequent occurrence amongst the lower mammals. Kroon[1] relates a case of a goat bred on Sept. 14th, 1897, œstrum and copulation recurring 52 days later. 152 days later she expelled three fully formed embryos, two living and one dead. Next day, when the membranes were expelled, three more perfectly formed, but imperfectly developed, embryos were discovered. Tapken, quoted by De Bruin, gives a case of superfœtation in a sow which was bred on Feb. 22nd, 1890. Œstrum and copulation occurred 14 days later. In the following June she gave birth to seven live pigs, and 14 days later to nine live and three dead pigs. Reasoning from these cases in mammals where a double uterus existed superfœtation seemed not alone possible, but extremely probable. Obstetrical literature contained several recorded cases of what presumably were instances of superfœtation, but whether true superfœtation occurred in the normal human uterus was very doubtful. In the 38 recorded cases of bicornuate uteri in women there was no case mentioned of superfœtation having occurred.

[1] Geburtshilfe Kleineren Haustieren.

Mr. SETON PRINGLE read a note on a case of Complete Transposition of the Viscera. The condition was found in a man, aged 27 years, who was the subject of extensive cancer of the rectum. He opened the abdomen for the purpose of fully examining the extent of the disease, and, if removal was out of the question, of performing a colotomy. He found a transposition of all the abdominal organs, and as removal was impossible he performed colotomy, fixing a knuckle of the iliac colon in an incision in the right inguinal region. The heart was situated in the right thorax, the apex beat being in the fifth right intercostal space, 1¾ inches inside the nipple line.

Professor A. CAMPBELL GEDDES showed specimens and lantern slides of Developmental and Acquired Abnormalities met with in the dissecting-room during the winter session 1909–10. The first of these was an abnormal nasal duct, which opened into the middle instead of into the inferior meatus of the nose. On dissection it was found that there was a thin fibrous cord occupying the normal position of the duct. No record of a similar abnormality had been discovered in the literature. Other specimens were abnormal bicuspid teeth, an abnormal right lung, and several abnormal livers, one of which possessed no quadrate lobe, the ligamentum teres passing backwards immediately superior to the gall-bladder. At the close of his demonstration Professor Geddes showed a series of photographs to illustrate the mechanical effects of a massive pleural effusion.—Professor SYMINGTON said with reference to the pleural effusion, that in his opinion there was a very serious defect in the conducting of post-mortem examinations. It seemed to him that a great deal could be learned if some hardening fluid was injected and the organs were fixed in position. The object of the pathologist was to get the organs out of the body, and there was little attention paid to the topography of the body under pathological conditions.—Dr. THOMAS G. MOORHEAD said that extreme difficulty was found in carrying out Professor Symington's suggestion with regard to post-mortem examinations, which were generally done in a hurry, with friends waiting outside the door to inter the remains. As far as possible they aimed at letting the patient die with the fluid removed. When they did make use of a hardening agent it was found to defeat one of the main objects of a post-mortem examination—the finding of the cause of the pathological condition.

Dr. N. C. RUTHERFORD showed lantern slides of a Human Embryo of the Fifth Week. Such features as the proto-vertebral markings, the closing cervical sinus, the state of development and rotation of the limbs, the commencing appearance of the middle digit on the left side, indicated the age of the specimen as almost exactly the middle of the fifth week. He was of opinion that the embryo had no exact counterpart among those collected by Keibel and Hochstetter.

COMPETITION OPEN TO MEDICAL STUDENTS.—The Society of Medical Phonographers offers a prize of one guinea for competition amongst medical students for the best answers to three questions in medicine and surgery which are intended to appear in the August, October, and December issues of the *Phonographic Record of Clinical Teaching and Medical Science* (the organ of the society). The sole qualifications for entry for the above competition are membership of the Society of Medical Phonographers and ability to read shorthand (Pitman's system). Answers to the questions may be sent in in ordinary writing, typewriting, or shorthand at the option of the candidates. The above competition will take place if not less than four student members enter for it. Entries must be received on or before July 7th by the honorary secretary of the society, Dr. A. Hill Joseph, 10, Cantelupe-road, Bexhill-on-Sea, who will be glad to receive applications for membership. There will be no entrance fee. Student members of the Society of Medical Phonographers pay a subscription of 5*s.* per annum, in return for which they receive the *Phonographic Record of Clinical Teaching and Medical Science* as well as other literature issued by the society. Members of the profession pay a subscription of 7*s.* 6*d.* per annum. It is proposed later to institute another competition in anatomy and physiology.

Reviews and Notices of Books.

The Laws of Heredity. By G. ARCHDALL REID, M.B. Edin., F.R.S.E. London: Methuen and Co. Pp. 548. Price 21*s.* net.

Dr. Archdall Reid has attempted a very big thing in the work which lies before us. He has attempted to cover in one treatise the methods employed and the results achieved by the various schools who are working at the problem of heredity to-day. Do not let us give a false impression of the book. It is not the work of a compiler. The "laws of heredity" are not the various laws which have been formed by other people—Weismann, Mendel, Galton, and Pearson: they are the fundamental principles of heredity as conceived by Dr. Reid. So far from being a mere compilation the individuality of the author is writ large on every page of the book. We do not mean that it is our opinion that he has failed to attach due significance to the work of other men. So far from this being the case, he has an admiration for the writings of the logicians of the nineteenth century, the magnitude of which is reflected in the number of passages quoted, for instance, from the works of Mill, Jevons, and Whewell. Of many of his contemporary workers, on the other hand, Dr. Reid has a poor opinion. For the Mendelian workers and for the biometrical school he has some very hard words.

His two attitudes—to eminent logicians on the one hand and to present workers on the other—correspond to the two headings under which the ideas and material embodied in this book may be conveniently classified—namely, constructive and destructive. In the constructive parts he supports his own theories by ample quotations from other thinkers. In the destructive parts he dissects the experimentalists, the Mendelians, the biometricians, and the mutationists of the present day. It is our opinion that both sections of the work are of deep interest and value; but the value of the constructive part is very different from that of the critical.

Let us deal with the destructive or critical section of the work first. This is valuable, because in our opinion Dr. Reid really is a great critic. He has a piercing eye for disproportion, and he owes his power as a critic to the fact that he has not received a biological training in any of our universities or great scientific institutions. We recall a controversy in one of the monthly journals in which the following passage of arms occurred. A critic had asserted that Dr. Reid with all his astuteness was not a trained thinker. To this Dr. Reid replied that his critic with all his training was not an astute thinker. This reply was not only witty, but profoundly and valuably true. The author of "The Laws of Heredity" owes his astuteness in great part to the fact that he has not received the training to which the young man who decides to devote his life to the study of vital processes is compelled to submit, not only before he has taken his degree, but afterwards as well. He views the phenomena of heredity from the properly distant vantage ground of a man who accepts any relevant evidence without first inquiring the precise nature of the method by which it has been collected. The Mendelian thinks of heredity in terms of unit characters, segregation, and allelomorphs. The biometrician does not think about the facts at all until he has marshalled them on a correlation table. Members of these schools are too close to the phenomena they investigate, and too fond of the method by which they investigate them, to be able to detach themselves sufficiently from either, and thus to be in a position from which the whole range of hereditary phenomena at present known to us can be seen. We think that Dr. Reid's claim that he can take this comprehensive view of the subject-matter of his book is justified.

Let us glance at the two subjects which Dr. Reid has examined critically and with results which deeply concern the medical practitioner and the professional biologist—namely, the question of the inheritance of acquired characters and the Mendelian theory of heredity. Workers familiar with hereditary processes have long realised that the controversy which has raged over the question whether acquired as well as innate characters are inherited is a fictitious one in the sense that it has resulted from the use of terms which have conveyed the ideas they were intended to convey very imperfectly. Indeed, so ill-chosen have the terms used in this controversy been that it is not surprising to hear the view expressed that it is no more than a dispute as to the meaning of terms. Dr. Reid's achievement has been to discern the real point at issue and to clothe it in a phraseology which bears a closer relation to actuality than, for instance, the worn-out terms "acquired" and "innate." We are not by any means of the opinion that Dr. Reid's statement of the problem is final. But as a provisional clearing of the ground we think it serves a very useful purpose. The distinction between innate and acquired characters is a foolish one, because all characters are acquired and they are also all innate. The characters of an organism do not differ from one another in the degree of their innateness (if the term may be allowed), because all characters depend for their existence on the response made by an inherited or innate potentiality in the germ to an external stimulus. Every character of an organism that we can think of is acquired at some stage during the process of development. This is obviously so; the germ cell possesses none of the characters which distinguish the organism which develops from it. It may be objected that the germ cell possesses them *in potentiâ*. Precisely. It does. And this is only another way of saying that a character is acquired during development as the result of the response by an innate potentiality to an external stimulus.

Characters differ from one another according to the nature of the stimuli which are necessary to call them forth. These, according to Dr. Reid, are Nutriment, Use, and Injury. What we mean when we speak of innate characters are characters which arise in response to the stimulus of nutriment. What we mean when we speak of acquired characters are those which arise in response to the stimulus of use or of injury. If we hold that an oarsman who doubles the size of the muscles of his back will have a son whose back muscles will, even if he himself does not row, start with the strength acquired by his father—if we believe this, we have to believe that a character which appears in one generation in response to the stimulus of use appears in the next in response to the stimulus of nutriment. It is transferred from one category to another. Dr. Reid says not only that this does not happen, but that it would be a most disadvantageous thing if it did. A character which develops only if, and to the extent to which, it is wanted is a much more convenient thing than one which develops to its fullest extent anyhow, that is to say, if it receives the nutriment necessary for its development. The possessor of a character of the former type is like a man with £50,000 in the bank and a cheque-book; a possessor of the latter type only is like a man doomed to carry that sum about him in gold.

Now with regard to Dr. Reid's critique of the Mendelian hypothesis. It is well known that perhaps the most interesting application of the Mendelian principles of inheritance is the attempt which has been made to interpret the phenomena of sex by the conceptions of unit characters and segregation. The series, as read by the Mendelian, begins with

varietal, non-sexual characters, and culminates in the sexual ones. Dr. Reid's view is expressed epigrammatically by him as follows. Mendelians, he says, have suggested that the inheritance of sexual characters is Mendelian; we shall be much nearer the truth, he holds, if we say that the inheritance of Mendelian characters is sexual. He reads the series of the Mendelian backwards—from the Mendelian's point of view. He thinks the Mendelian has got hold of the wrong end of the stick. Sexual characters are older than Mendelian ones, which occur almost exclusively in the domestic state. The mode of inheritance of sexual characters is the starting point; Mendelian phenomena are anomalous hereditary processes which have nothing to do with the main line of racial descent; they owe their existence to the transference, in the domesticated state, of the alternative mode of inheritance which was primarily evolved in connexion with sexual characters to isolated varietal characters, most of which are closely associated with secondary sexual characters. What is the mode of inheritance of sexual characters? Why do Mendelian characters occur only in domesticated breeds? Why are latent characters very rarely, if ever, revealed when natural varieties are crossed? These are questions the answers supplied to which by Dr. Reid form some of the best reading in his book. What is the function of sex? In his answer to this Dr. Reid proceeds, in our opinion, far in advance of established facts.

This brings us to a consideration of the constructive part of the book. Dr. Reid is very sanguine about the value of the results which can be achieved by thinking. Those who are equally sanguine will enjoy this part of the work. "The method of work on which I insist," says Dr. Reid, "is no new thing. It is the method which has been proclaimed as the only right one by every authority who has both thought and expressed himself on the subject; it is the one which has been followed by every great scientific worker; it is the one by which the truth of every law of nature known to us has been established. At the risk of tiresome reiteration this method of work may be indicated as follows:—When, as in the study of heredity and evolution, we wish to establish the relations between facts that occur in sequences (i.e., when we wish to discover chains of cause and effect), we must formulate hypotheses. But hypotheses are mere guesses until they have been tested and found to be true. They can be tested only by making deductive inferences of consequences from them and appealing to reality to ascertain if these consequences actually follow. If a hypothesis enables us to predict correctly in this way, then it is in all probability true; and it is the more certainly true (and useful) in proportion to the number of different correct predictions it enables us to make—in proportion as it accords with the whole universe of relevant truth. Moreover, such deductive appeals to reality not only enable us to test hypotheses and so convert them into laws, they not only enable us to bring within the range of each real law masses of data which had not been used for the corresponding hypothesis, but they enable us to perceive the relations between the several laws, and so, by linking the laws together, to advance towards that harmony of knowledge which is one of the principal aims of science." For our own part, a distrust of the ratiocinative faculty, begotten of a deep interest in the process itself of the interpretation of natural phenomena, and of a sufficient familiarity with its history, prevents us from sharing this sanguineness. But those who think as Dr. Reid does may be less remote from the truth.

In his vindication of the value of deduction Dr. Reid says: "Scientific deduction, like scientific induction, differs from our common use of the process only in the greater precautions we take to make it accurate. It would be strange if a process, so useful and necessary in the ordinary affairs of life, should become valueless and dangerous the moment we endeavoured to use it with care, and if men, to become scientific, must cease to be rational." Certainly it would be strange. Great changes when they occur are strange. There are signs that this change may be not far off. Indeed, one of the fundamental tenets of the philosophy of one of our greatest modern philosophers—M. Henri Bergson—is that the rational faculty which has been evolved to deal with the practical affairs of everyday life is entirely unsuited for prosecuting the quest for truth. We can imagine no more valuable mental exercise than the attempt to master the point of view set forth in Dr. Reid's "Laws of Heredity" and that in M. Bergson's "L'Evolution Créatrice."

The constructive part of Dr. Reid's book is interesting because it represents, to our mind, the maximum that can be achieved by painstaking thinking, and because it is the last attempt to base an explanation of the process of evolution on the doctrine of Natural Selection. Just as Dr. Reid does all that he can with Reason, so he does all that can be done with Natural Selection—which, in his belief, is practically everything. Adaptation is, he says, the anchor around which the thoughts of the student of evolution must ever swing. He has taken the step from which Darwin shrank, and has made Natural Selection, if not the cause of variation, at any rate that which determines its amplitude and extent. The function of sex is elucidated by showing the useful part played by bi-sexual descent. If Natural Selection is valid, Dr. Reid will have demonstrated its validity; if it is not, Dr. Reid will be responsible for its explosion. For he has led that doctrine to its logical conclusion.

Dr. Reid draws a distinction between facts patent and obscure. The former can be seen by everyone, the latter can only be revealed by the exercise of difficult and tedious experiment, and he is critical of those who lay undue stress on the facts brought to light by the latter method. He thinks it unfortunate for the experimenters to have to spend so much time in finding things out in these cumbersome ways, but allows that the particular facts cannot be found out in any other way. Dr. Reid here loses sight of the point that scientific men do not always employ the methods with which they grow familiar, because they want to discover the truth, but sometimes because they like those particular methods. If Dr. Reid discovered that the truth could be swiftly and surely reached by the process of Mendelian analysis, which is not likely, he would not prosecute Mendelian studies. The error into which Dr. Reid falls here is a result of that utilitarian aspect of vital activity to which the doctrine of Natural Selection makes an irresistible appeal. We consider this to be the defect in his position, and we wish to remind the reader that there are many intelligent men who do not, for instance, regard reason as the sole, or even always a suitable, instrument for elucidating the truth, while there are others equally intelligent to whom the whole mechanistic view of life which underlies the doctrine of Natural Selection is extremely repulsive. But be this as it may, Dr. Reid is the most authoritative medical writer on heredity, and no one who wishes to keep abreast of current thought can afford to be without "The Laws of Heredity."

There is an appendix, entitled "An Attempt to Represent Diagrammatically some of the Ideas connected with Inheritance," by Professor H. H. Turner. It is written with the idea of making the theses embodied in the book interesting to mathematicians.

Gynécologie Médicale: Traitement Médical des Maladies des Femmes. By Professor ALBERT ROBIN and Dr. PAUL DALCHÉ. Third edition, revised and enlarged. Paris: Vigot Frères. Price 12 francs.

THE authors of this work believe, and to a large extent we agree with them, that the medical treatment of gynæcological cases has become somewhat obscured of late years by the enormous strides which have been made in the surgical treatment of these affections. They maintain that there is still room for the medical treatment of many of these cases and that the treatment of the various diseases of women should not be allowed to become purely surgical in character. Further than this, a good knowledge of gynæcology is essential for the general practitioner, and he must be acquainted with the various means of treating such cases without the assistance of the surgeon. Certainly, if we may judge by the size of this book, medical gynæcology is a subject of considerable importance, and yet when we examine what the book really contains we are led to the conclusion that the authors might have compressed what they have to say into a much smaller compass.

The first part of the book deals with what they term "Fausses Utérines," that is to say, the various affections of other organs of the body which can simulate uterine disease or can cause symptoms referable to the pelvic organs but not pelvic in origin. It is, of course, well known to every practitioner of experience that pelvic symptoms may accompany a variety of other diseases; for example, we may instance the effect of the nervous system upon menstruation, the influence of heart disease in producing hæmorrhage from the uterus, of anæmia in causing amenorrhœa, of the acute specific fevers in the production of endometritis, and of the abuse of alcohol and of pelvic congestion the result of constipation in aggravating ovarian pain. When we consider, however, how relatively small a part these pelvic symptoms play in the various diseases we have mentioned, and how every patient who is at all out of health is likely to suffer some slight derangement of the functions of the pelvic organs, it appears to us hardly worth while to devote, as the authors have done, some 134 pages to a consideration of these conditions. The authors may feel that it is necessary for the French practitioner to have his attention more especially called to these facts, but their importance can well be exaggerated, and to English students their relative insignificance is well known.

After the section devoted to the "Fausses Utérines" the authors discuss menstruation and its accidents, including a consideration of puberty, the treatment of dysmenorrhœa and amenorrhœa, and the menopause. There is also a chapter on the treatment by ovarian extract of a large number of varying affections. Apparently the authors recommend this form of treatment in such different disorders as anæmia and menorrhagia, chlorosis, Graves's disease, obesity, and chronic rheumatism, as well as in various forms of mental disturbance. Our own experience of this therapeutic measure has not been very favourable.

The next section deals with the different maladies of the vulva, the vagina, the uterus and its appendages, and details very fully indeed all the therapeutic remedies which can be employed in dealing with them. Some 50 pages are devoted to a consideration of so-called metritis. It is a little difficult to determine exactly what the authors mean by the term metritis. Their pathology is a little out of date, and we find that they quote, apparently with approval, such views as those of Aran, who attributed metritis to constipation, and Gaillard Thomas, who thought it due to feebleness of the constitution or to deprivation of air and exercise. The authors, like many other writers on gynæcology, use the terms endometritis and metritis in a very loose and unscientific manner, and as they give them such a very wide meaning it is not surprising that their therapeutic measures are exceedingly various.

It would have increased the value of the work if a little more attention had been paid to modern pathology, and if more precision and selection had been exercised in the sections dealing with the supposed etiology of these different affections. It is interesting to note in this connexion that in the report of the in-patient gynæcological department of a large London hospital for the year 1908 not a single case appears to have been diagnosed or treated as metritis. No doubt this may be merely a question of terms, but it serves to point an interesting contrast between the teaching of the authors of this work and that of the well-known gynæcologist who has charge of the department we have alluded to.

The last part of the book contains a very long and detailed description of the different methods of treating affections of the pelvic organs by hydrotherapy. Every variety of water is discussed in detail and all the methods in which it may be employed, and while much of this section is interesting it can be of but little utility to the practitioner.

The whole book appears to us to have been written without a due sense of proportion: the value of the medical treatment of pelvic affections is exaggerated, and the authors base many of their recommendations upon a pathological foundation which is largely supposititious and not in accord with modern teaching.

La Période Post-opératoire: Soins, Suites, et Accidents. Par Dr. SALVA MERCADÉ, Ancien Interne Lauréat des Hôpitaux de Paris. With 82 figures. Paris: Masson et Cie. 1910. Pp. 553. Price 12 francs.

THE aim and scope of this book, which deals with the after-course and care of patients recovering from operations, are most excellent. It ought to prove of utility to those in general practice who have such patients left in their charge after a specialist has been called in for the operation. The arrangement of the various subjects is good, the writing is clear, and the get-up of the book is attractive. Professor Lannelongue introduces the author and his subject by remarking that the various treatises on systematic and operative surgery leave a gap which this book is designed to fill.

The first chapter is a somewhat meagre general account of the condition and care of the patient after an operation. It is of questionable value to insert in a brief summary such a statement as that "if in spite of all these measures post-operative anuria persists, nephrostomy should be performed without hesitation." The complications due to anæsthetics and antiseptics are considered in detail. Chloroform is mentioned as the most frequently used general anæsthetic; anæsthetic vomiting is described without discussing how it is to be distinguished from vomiting due to peritonitis or intestinal obstruction; acidosis, acetonuria, and late chloroform poisoning are all separately described as if they had no connexion, and the treatment of these conditions by the injection of alkalies is not mentioned. Bronchitis is said to be rare after ether, but pneumonia common, and no distinction is made between the closed and open methods of giving this anæsthetic. The fourth chapter treats of the local and general complications after operations, and here as elsewhere there is a lack of precise directions for treatment, which should be the first aim of the book. Much stress is laid upon the injection of collargol in septic conditions, but the use of vaccines and serums is omitted. The remaining chapters describe the course and complications following the various procedures of regional surgery. It is possible that these are a good representation of French methods, but they certainly teem with

matter requiring criticism chiefly on the score of omission from our point of view. For instance, reference is absent or scanty with regard to the following: keratitis after the removal of the Gasserian ganglion; nasal feeding after operations for cleft palate; gland removal in cancer of the tongue; the necessity for peptonisation or citration of milk used for feeding patients after stomach operations; the relation of hæmorrhage after gastro-enterostomy to the use of anastomosis forceps; the advantages of the Fowler position after gastric operations; the treatment of ruptured gastric ulcers and the occurrence of subphrenic abscesses; the use of Paul's tube in colostomy; the occurrence of urinary fistula, mania, and retention of urine after prostatectomy; and the posture of abduction necessary after excision of the hip. Comparatively rare or doubtful operative sequelæ—e.g., the occurrence of exanthemata and the atrophy of the testes after removal of tonsils, acute dilatation of the stomach after laparotomy, and kraurosis vulvæ after hysterectomy—are discussed at disproportionate length. To say (see p. 416) that after prostatectomy the bladder functions are perfectly resumed and that the patients pass urine well and never suffer from a recurrence of their former symptoms is, we venture to think, an unfairly optimistic statement, for which no doubt certain English surgeons are in large degree responsible.

We have pointed out frankly what we consider omissions; in spite of them the book is of real value, which no doubt will be enhanced by revision and additions in a subsequent edition.

Urgent Surgery. By FELIX LEJARS, Professeur Agrégé à la Faculté de Médecine de Paris, Chirurgien de l'Hôpital Saint-Antoine, Membre de la Société de Chirurgie. Translated from the sixth French edition by WILLIAM S. DICKIE, F.R.C.S. Eng., Surgeon, North Riding Infirmary, Middlesbrough; Consulting Surgeon, Middlesbrough Union Infirmary; Consulting Surgeon, Eston Hospital. With 20 full-page plates and 994 illustrations. Vol. I., Introductory, Head, Neck, Chest, Spine, Abdomen. Bristol: John Wright and Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1909. Pp. 617. Price 25*s.* net.

WE have on several occasions spoken very favourably of the well-known work of Lejars, "Chirurgie d'Urgence," and we extend a cordial welcome to this presentation of the work in an English dress. The excellence of the text, the clearness of description, the fulness of the suggestions for treatment, and the abundance of illustrations should ensure the success of the book in this country. In emergencies the technique of an operation may have to be learnt with but little time for preparation, and though the skilled operating surgeon is ready for all that may come before him, those who have had but little experience in the practice of surgery will find great value in having a trustworthy text-book to consult in moments of need; and they can have none more trustworthy than the work before us. The mere fact that the original has reached the sixth edition within a few years will show how great has been the success the work has attained in the country of its origin, and this success has been well deserved. We would especially draw attention to the completeness with which the subjects are treated. We may quote as an instance of this the account of the equipment of the surgeon, and the description which is given of the method of procedure in a case of extreme urgency with a complete lack of necessaries. Illustrations are given of what may be thought simple matters, such as how the nails should be cleansed for an operation and how a basin of lotion should be held. The volume under review contains only half of the original, the remainder being about to appear in the second volume. We have here an account of the urgent surgery of the head, neck, thorax, pharynx, and abdomen. It is, of course, by no means easy to draw a sharp line between surgery that is urgent and that which is not, but we think Lejars has acted wisely in interpreting urgency somewhat widely. For the translation we have nothing but praise. The English is idiomatic and betrays rarely its origin.

A Manual of Diseases of the Nose and Throat. By C. G. COAKLEY, A.M., M.D., Professor of Laryngology, University and Bellevue Hospital Medical College, New York. Fourth edition, revised and enlarged. With 126 figures and 7 coloured plates. London: Henry Kimpton. 1909. Pp. 604. Price 14*s.* net.

NO book arrives at its fourth edition without a reason, and this manual has merits which will recommend it to the student of laryngology. The first two chapters deal with the anatomy and physiology of the upper respiratory tract. Antisepsis is the theme of the third chapter, one which we hope is less necessary every edition, as the younger members of the profession learn the lessons of asepsis and antisepsis so much more thoroughly than was the case 20 years since. Nasal obstruction is dealt with in the fourth chapter briefly, more as a grouping together of all possible causes than as a complete dissertation on the subject, for the various diseased conditions of which nasal obstruction is a symptom are naturally discussed seriatim. The next 50 pages are occupied by the different forms of rhinitis; the section on hypertrophic rhinitis might be enlarged with advantage, for it is the form most commonly seen by the general practitioner. The only operation on the septum alluded to is that of submucous resection, which is not sufficient, for there exist many deformities which may be corrected by simpler and easier procedures. Diseases of the antrum are illustrated by several coloured plates showing the effects of transillumination on diseased and healthy antra. Diseases of the pharynx, tonsils, and the adjacent parts are very clearly described, and a decided preference is expressed for excision of the tonsils. Diphtheria, tuberculosis, and syphilis of the nose, pharynx, and larynx are dealt with in a very able manner, as are all the various pathological lesions of the larynx. There is at the end of the book a chapter on therapeutics which will be found of great assistance to practitioners.

Dr. Coakley's book is of the right size for the practitioner, it is clearly written, not too deep, and essentially practical.

Operations on the Ear: The Operations for Suppurative Otitis Media and its Intracranial Complications. By B. HEINE, Professor of Otology in the University, and Director of the Otological Polyclinic in Königsberg, Prussia. Translated and edited from the second German edition by W. LOMBARD MURPHY, M.B., B.C. Cantab., F.R.C.S. Irel., Surgeon to the Throat and Nose Department, St. Vincent's Hospital, Dublin. With 56 illustrations. London: Baillière, Tindall, and Cox. 1908. Pp. 204.

Professor Heine, besides detailing the various operations on the ear, goes also fully into the indications for each operation. The first series of operative procedures is that affecting the tympanic membrane, where a transverse incision is recommended. In describing the operation for removal of the ossicles it is advised that the ear be not cleansed immediately before the operation, but syringed, then swabbed with sublimate solution, and packed with iodoform gauze. This seems likely to leave an operation cavity unnecessarily septic, especially as the immediate after-treatment advised, subsequent to removal of extravasated blood, is merely packing with iodoform gauze; but in respect to the small value of the operation Professor Heine is in agreement with the majority of aural surgeons. Under operations on the mastoid process full

descriptions of the two procedures most commonly in use—opening of the antrum for acute mastoid disease and the radical operation—are well and clearly described, though here again the use of a strong antiseptic to the cavity is omitted in accordance with a prevailing custom in many parts, at least on the continent, which would explain the relatively great frequency of post-operative labyrinthitis abroad. The frequency of fistulous openings into the external semicircular canal is pointed out, and a strongly worded opinion is given as to the advisability of leaving these fistulæ untouched when the symptoms show no indication of general labyrinthine infection. Professor Heine also considers that labyrinthine operations cannot be termed safe, but that there is always a risk to the patient.

Sinus thrombosis and pyæmia are much more fully detailed than is usual, and some very pertinent remarks are made on the subjects, but the suggestion to expose the sinus in every case of suppurative otitis media when a sudden rise of temperature occurs and where the exanthemata can be excluded is too sweeping. Professor Heine advocates the non-removal of benign thrombus, but treats the sinus like an abscess, with incision and plugging. He also takes a very unbiased view as to the advisability or otherwise of tying the jugular vein as a regular rule in septic thrombosis of the sinus, but is fully in favour of exposing the bulb when necessary. The operations for cranial abscess and for meningitis complete the book.

To those who wish to have a good *résumé* of the views of German aural surgeons with regard to operations on the ear we can recommend the present treatise as a very comprehensive one, but it may be remarked that there is no reference to the work of any British aural surgeon. The translation is fairly good, and the matter is presented in a very interesting way.

LIBRARY TABLE.

Constipation and Intestinal Obstruction (Obstipation). By SAMUEL GOODWIN GANT, M.D., LL.D., Professor of Diseases of the Rectum and Anus in the New York Post-Graduate Medical School and Hospital. With 250 original illustrations. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 559. Price 25*s.* net.—It might be thought in these days of pills and aperient mineral waters that there was little risk of under-estimating the importance of constipation. But with the public all forms of constipation, whatever the origin, are treated by means of some aperient, more or less drastic, and only too many medical men hold similar views. There is, therefore, ample scope for a work which deals fully with what may be called the non-medicinal treatment of constipation, and in this work Dr. Gant describes adequately those methods of treatment of constipation which do not consist in the administration of drugs; thus we find described the employment of diet, hydrotherapy, exercise, and massage. The book also deals with the surgical treatment of all forms of intestinal obstruction, both acute and chronic, arising from mechanical causes; and thus many intestinal operations are described. An adequate number of illustrations is provided, some of them borrowed from the author's treatise on the rectum, and altogether we can speak very favourably of the work. We commend it to the attention of those members of the profession who are dissatisfied with the drug treatment of habitual constipation.

The Laws of Life and Health. By ALEXANDER BRYCE, M.D. Glasg. London: Melrose. 1910. Pp. 421. Price 7*s.* 6*d.* net.—There are few things which show more plainly the altruism of the medical profession than the constant stream of books written by medical men on the broad subject of how to keep well. Possibly in a few hundred more years Western nations will attain to the enlightened state of matters existing, according to travellers, in China and Persia, where medical men are retained not so much to serve in case of illness but to keep their clients in a state of good health. Only recently we reviewed a book by an American physician upon this subject, and the book before us deals with the same matter. Shortly, it may be said that the author has taken the "six non-naturals" of mediæval physicians—namely, food, exercise, rest, the excretions, air, and the passions. Each chapter has for a heading one of the laws mentioned in the title. Some of these are very general, but are dealt with more in detail in the chapter to which they belong, and every chapter is provided with a tabulated summary at its finish. Taken as a whole the book is a good one, but in places it bears evidence of hasty writing. For instance, on p. 106 Dr. Bryce says: "One per cent. of sherry in the stomach contents entirely stops digestion, a result which is probably due to the acid content." We cannot consider this statement as accurate. Again, on p. 48, in talking of eggs he says: "One-tenth is shell, six-tenths is white of egg or pure egg albumin, and three-tenths is yolk." Why should the water be entirely ignored? One of the best chapters is that on rest, which includes a discussion of rest for the eyes and ears as well as for the body and mind in general. Another chapter containing much sound advice is that upon cheerfulness, although many of the precepts may be found by those who endeavour to practise them counsels of perfection. In the next edition the misprint on p. xviii. of the introduction, where Sir Rubert Boyce appears as Sir Rupert Boyce, should be corrected.

The Police Officer's Guide to the Children's Act, 1908. By W. B. GENTLE, Chief Constable of Brighton, and C. A. RAWLINGS, solicitor. London: Effingham Wilson. 1909. Pp. 32. Price 1*s.* 6*d.* net.—This little pamphlet gives in a simple tabulated form the salient points of the "Children Act, 1908." The Act is a complicated affair, and its provisions cover very diverse ground. This abstract has therefore been drawn up for the assistance of police officers, and forms a clear and simple guide which should undoubtedly be of great value to those officials. It would also be useful to police surgeons and to general practitioners, who should, if they are wise, always procure copies of, or guides to, new Acts of Parliament which affect questions of offences against women and children. There is an addendum to the volume by Mr. C. A. Rawlings of a similar tabular form dealing with other Acts, including the Midwives Act, 1902, the Prevention of Cruelty to Children Act, 1904, and the Motor Car Act, 1906, all of which are of interest to medical men.

Jahreskurse für Ärztliche Fortbildung. In 12 monthly parts. Price 16 marks per annum. Munich: J. F. Lehmann.—The April number is devoted to a consideration of the recent advances in syphilology and diseases of the kidneys. Professor Neisser and Professor Siebert give a most excellent *résumé* of the former subject. The causation of syphilis by the spirochæta pallida is first considered. A very simple method of demonstrating the spirochætæ is by the use of Chinese ink. The organisms show up as light filaments against the dark background thus provided. The inoculation of apes has produced syphilis exactly similar to that in human beings except that the deep visceral lesions are not found. The uselessness of excision of the primary chancre to prevent the dissemination of disease has been experimentally demonstrated in animals, in which it is proved that constitutional infection occurs before the primary lesion becomes manifest. As regards the prevention of syphilis, dilute solutions of mercurial salts are held to be much more efficacious than Metchnikoff's original calomel ointment. The most valuable part of this section is that dealing with Wassermann's reaction. The method by which it is carried out and the principles underlying it are

explained with masterly simplicity. In spite of the fact that certain other diseases—e.g., frambœsia, leprosy, malaria, and scarlet fever—also give a positive reaction, this test is held to be of the utmost importance in the diagnosis of syphilis, especially in its late and latent forms. In the primary stages it may be obtained in about 70 per cent., in the secondary stages in 94 per cent., and in the tertiary stage in about 78 per cent. of cases known to be affected with the disease. The manner in which a positive reaction can be followed by a negative as the result of energetic mercurial treatment is of great interest and value in estimating the effectiveness of a cure. The value of the reaction in relation to the marriage of syphilitics, the employment of wet-nurses, and the detection of hereditary syphilis is critically considered. A full list of references to the literature on this subject is added. The section on Albuminuria and Nephritis by Professor Klemperer deals chiefly with the distinction between functional and organic affections, the question of salt-free diet in the treatment of nephritis, and a consideration of the more recently invented diuretics.

Guide to the Libraries of London. By REGINALD ARTHUR RYE, Goldsmiths' Librarian of the University of London. London: University of London. 1910. Pp. 206. Price 2*s.* 6*d.* net.; 2*s.* 10*d.* post free.—This the second edition of this excellent "Guide to the Libraries of London" is more than double the size of the earlier edition, and in concise yet not too brief manner indicates what each library in London contains on its shelves and to what extent those shelves are open to the use of the public. The book deals with general libraries, special libraries, and libraries of educational institutions, and will be found useful both to the general reader and to the student of special subjects. The author has kept very strictly to his intention of writing a general guide, and has not allowed any predilections for manuscripts or early printed volumes to take up space to the detriment of the value of all-round information. By the way, is it correct to say that the archives of the diocese of London are kept at Fulham Palace? Surely the series of episcopal registers have long been kept in St. Paul's Cathedral. The volume contains 16 photographs, which mostly represent the interiors of the different libraries of the metropolis.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON, M.A., F.R.S., and E. A. MINCHIN, M.A. London: J. and A. Churchill. No. 217 (Vol. LV., Part I.), New Series. April, 1910. Price 10*s.*—The contents of this number are: 1. On the Anatomy and Systematic Position of Incisura (Scissurella) Lytteltonensis, by Gilbert C. Bourne, Linacre Professor of Comparative Anatomy in the University of Oxford, with five plates. Certain characters were noted as long ago as 1893 by E. A. Smith in Scissurella lytteltonensis which have led C. Hedley to form a new genus on account of the brevity of the slit in the shell, the absence of raised rims or keels on either side of the slit, the subterminal apex, the absence of spiral sculpture, and the remarkable solidity of the shell. He proposed for the new genus the name Incisura. Professor Bourne thinks this genus should stand, and in support of this view gives a full description of the anatomy of the Incisura lytteltonensis which is found on the seaweed Cystophora in rock pools in Lyttelton Harbour in Tasmania. 2. The Eye of Pecten, by W. J. Dakin, M.Sc., Assistant Lecturer in Zoology, University of Belfast, with two plates and two text-figures, which is referred to at some length on p. 1488 of our present issue. 3. Observations on Certain Blood Parasites of Fishes occurring in Rovigno, by Professor E. A. Minchin and H. M. Woodcock, D.Sc., with three plates. The authors state that the objects of this paper are twofold. The first is the description of a hæmogregarine and a trypanosome occurring in a species of gurnard (Trigla lineata) common in the Northern Adriatic. The hæmogregarine they regard as a new species, which they propose to call Hæmogregarina rovignensis. The second object they have in view is the comparison of the minute structure of the nucleus of the above-mentioned hæmogregarine with that of the trophonucleus of a trypanosome. They think, and give reasons for their opinion, that they are of two very different types. The former they find to be characterised by its chromatic reticulum with chromatic grains or masses more or less frequently distributed upon it. In the latter the greater part, or nearly all, of the chromatin is, as it were, condensed around a plastinoid basis, the whole forming the conspicuous karyosome, and in the centre of the plastinoid area is a definite granule, the intranuclear centrosome. 4. On Ganymedes Anaspidis, a gregarine from the digestive tract of Anaspidis tasmaniæ (Thompson), by Julian S. Huxley, with a plate and five text-figures. 5. The Fœtal Membranes of the Vertebrates, by A. A. W. Hubrecht.

Looking Back.

FROM

THE LANCET, *SATURDAY*, May 26th, 1832.

PROPOSAL TO FRANK ALL MEDICAL PERIODICALS.

To the Editor of THE LANCET.

SIR,—I observed in the title-page of the *Cholera Gazette*, "FRANKED to any part of the kingdom." Now it is not my wish or intention to quarrel with this piece of liberality, deeming it a very proper facility for circulating a publication which certainly *ought* to possess great value; but, Sir, as there are several weekly and monthly periodicals, wholly devoted to the purposes of disseminating equally, not to say more, useful medical information, I should very much like to know, why this boon of FRANKED might not be extended to them also? As the desire of doing good solely, no doubt, influenced this free transit of the Gazette, would not an extension of this privilege be eminently beneficial to science, and consequently to health? Pray turn your attention to this point; and, as you are so capable of taking an enlarged and enlightened view of subjects in general, see if you cannot so unfold my meagre suggestion, as to show at once its justice and reasonableness in such a manner as to secure, if not its adoption, at least the hearty exertions of the profession for ultimately securing it. Being a metropolitan, no advantage would accrue to myself, but my "country cousins" would feel it by the earlier receipt of their mental food.

I am, Sir,

AN INVALID SUBSCRIBER TO THE LANCET.

ROYAL FREE HOSPITAL.—The death, after a few days' illness, is announced of Mr. J. S. Barber, who recently resigned the post of senior dispenser to the Royal Free Hospital, which he had held for the remarkably long period of 59 years. On the occasion of his retirement from active work the committee of the hospital granted Mr. Barber a substantial pension in recognition of his long and faithful service, and the members of the committee and the medical and nursing staff also presented him with testimonials as tokens of their esteem. All connected with the Royal Free Hospital much regret that Mr. Barber has not been spared longer to enjoy his well-earned rest from active work.

THE LANCET.

LONDON: SATURDAY, MAY 28, 1910.

The Toll of the Mine.

ONCE more there has been chronicled a ghastly sacrifice of human life following upon the explosion and firing of a coal-pit. The circumstances of the recent disaster at the Wellington pit at Whitehaven, in Cumberland, are of a more harrowing and distressful kind than any that can be recalled in the previous history of colliery explosions. There were entombed 136 men and boys, to rescue whom appeared impossible, and ultimately the awful duty was imposed upon their comrades of sealing the mine up by means of a brick wall in order to arrest the progress of the fire, and thus to cut off the supply of oxygen necessary as much for human life as for the combustion of fuel. The exact fate of the men who thus perished is still unknown. We can only believe that the end was a merciful one, that agony yielded soon to unconsciousness by the breathing of anæsthetic gases, amongst which carbon monoxide may be fairly reckoned to have been present in overpowering volumes. A serious consideration, and one which in the interest of human life cannot be shirked, is whether this terrible disaster was the result of human error or indifference, or whether it had its origin in circumstances beyond human control. The explosion could not have occurred without its initiatory spark, and whether this was the lighting of a match, the impact of a pick, or some electric leakage will doubtless form the subject of official inquiry; but the best evidence on these points is not available, any witnesses who might have been able to throw a light upon the cause having been silenced for ever. Instances have often illustrated what a disregard, bred of familiarity with an uneventful routine, workmen develop for the terrific potentialities around them, and which may be let loose by a very simple breach of regulations. The neglect to use the nail-brush has poisoned many a worker in the lead industries, and the lighting of a lucifer match in the coal-pit has probably cost many lives. Men do not realise the danger of such proceedings until it is brought home in a dreadful way; too many are apparently oblivious of the regulations which have been drawn up for the protection of their lives and those of their fellows. We welcome, therefore, with particular gladness the reconstitution of the Royal Commission on Mines, which has just been announced, and note with pleasure the strong *personnel* of which it is composed.

Science has done much to minimise the dangers of the mine. Grave questions have received the earnest consideration of the very ablest scientific minds of the country, and sets of rules have been drawn up as a result of these serious studies, the strict observance of which, without the slightest doubt, has averted vast disasters. Science cannot, however, force an absolute regard for the precautions which she indicates, and which are essential in those industries in which lurk potential dangers. But science may go as far as to outline what can be done when, despite every conceivable human effort, the worst, for a mysterious reason, has happened. In this connexion we have in mind the very valuable report of Dr. JOHN HALDANE, to which we drew attention in these columns 14 years ago, on the occasion of its being presented to Parliament, and we are glad to see that Dr. HALDANE is one of the reconstituted Commission. Preventive measures relating to both "gassy" and dusty mines had already received careful consideration, and their practical enforcement was assured as far as anything that is human can be assured. Dr. HALDANE, however, dealt with the case where all preventive measures had failed to bring safety, and deduced from his practical inquiry the kind of methods which should be adopted in order that the loss of life in colliery explosions and fires might be reduced. His suggestions as to the saving of life after colliery explosions and fires have received universal approval, and their observance undoubtedly would reduce the terrors of mine disasters. We should be very glad to be assured, from the evidence that certainly will be demanded by the Royal Commission, that the machinery which is provided for the protection of the miner's life is kept in a rigorously efficient state. We cannot be certain that the suggestions have been adopted universally or backed with real effort, and our feeling on this point is accentuated by reading in the newspaper accounts of the Whitehaven disaster that a rescue party arrived by special train, bringing with them "their smoke helmets and other apparatus for dealing with the gases." From this account, therefore, it would appear that the rescue apparatus was not ready at hand. It would in any case have proved useless in this great subterranean fire, but the circumstances might easily have been such that the immediate availability of life-saving apparatus—smoke helmets and cylinders of oxygen, for example—would have meant all the difference between life and death to many miners.

An interesting observation has been made to the effect that the atmospheric conditions just preceding the day of the explosion presented the same general features as have been observed on the occasions of the majority of the worst mining explosions. During the day, that is to say, the barometer continued to rise, and over the Whitehaven district it reached its highest point (30¼ inches). The question was once asked in our columns, "Are colliery warnings observed?" which, somewhat to our surprise, received an answer from the Press Association, who informed us that colliery warnings were not issued by any Government Department, but by the Press Association. This association had, in fact, supplied warnings as the occasion arose for 24 years. The warnings were first introduced in 1881, when there were no new modern laws, and the result was a diminution in frequency of great colliery disasters, and for many years, said the Press Association, "there has not been a single catastrophe which can be compared with any of the numerous serious calamities of a generation ago, when we so often had to lament the loss of from 100 to 350 men in individual explosions." If the warnings have from the first played a not unimportant

part in the extremely satisfactory progress that has been made in the saving of human life in the mine, the question of the continued observance of these warnings assumes grave importance. We trust that this point will receive consideration when an inquiry into the Whitehaven disaster is opened, a disaster of tragic bulk. As long as man finds it indispensable to his existence to extract potentialities from the earth's great storehouse, so long will he have to face certain risks in adapting these potentialities to his use. But human effort can do much to reduce these risks, and the toll of the mine should grow lighter and not heavier as scientific advance is measured.

The Late King and Medical Work.

BY a habit of our minds we associate national advancement with the names of Kings and Princes. We speak of the Augustan Age, the Elizabethan Age, and the Victorian Age. It is a strange use of words thus to assign a whole epoch to a single life. For we know well that the forces which guide and urge mankind are not in one man, but in all. It took a century of teeming English life to make the Elizabethan Age; neither was that age made by England alone, but by the invention of printing, the discovery of America, and the Renaissance. France and Spain and Italy all lent a hand to shape "the spacious times of great ELIZABETH." Slowly, and in darkness, the forces which make history are formed and gather strength, and at last come into action, controlling and governing the Sovereign and his people. Yet in this custom of naming the world's phases after its Kings and Queens there is more than convention. The Sovereign is more than a mere patron of the arts and sciences. Indeed, men are beginning to be tired of the ordinary talk about Royal patronage. A hundred years ago it was the fashion to have patrons for everything: for a book, a picture, a bit of scientific work. A man could not publish a treatise without a long and high-flown dedication of his writings to this or that member of the nobility; he must describe his patron as the best support and encouragement that any man could ever wish to have. That was the fashion: and at the present time we are well rid of it. The old flattery and subservience are gone, and nobody wants them back. We no longer tell the aristocracy that they are of the utmost value to the arts and sciences: neither do we represent the Sovereign as personally responsible for the intellectual advancement of ourselves.

None the less, he is more than a spectator of the life of his people. For, by the fact that he is KING, all that is in our lives is writ large on his life. We move, each of us, in what we call our set, or our circle; but the set and circle of the KING are his kingdom and his colonies. Our sayings and doings touch a few hundreds or thousands of people, for whom we work; but the sayings and doings of the KING touch all people, for he works for all. We enjoy the loyalty of our colleagues, we maintain the traditions and the honour of our profession; but the KING enjoys the loyalty of his Empire, and maintains the traditions and the honour of our race. Our offences are known to our neighbours, but his offences to the world. Thus magnified, watched, and reported, he is raised above the lines of other men's lives; his example, his way of taking pleasure and of bearing pain, his likes and dislikes, his attitude towards GOD and man, all have a profound influence on the tone and the character of the nation. There was a time when it was believed that the Royal touch healed bodily diseases; and in the body politic the Royal touch works to-day. We still believe, and are justified in believing, that the Sovereign leads the fortunes of his times. Though he does not create the improvement of his people, nor make discoveries in science, nor initiate reforms, nor decide the changing fortunes of Church and State, yet he remains at the head of all advancement, all reform. To him ultimately we do refer and submit our work; and all who work for his people are in a sense working for him. Where have our thoughts been these last few weeks but with the KING? If loyalty to the Throne be not a reality, then what of our lives is real? London with its miles of solid crowd supplied the answer last Friday.

In the service for the burial of the dead KING EDWARD VII. became "this our brother." Well, that is what he had always tried to be. He had kept carefully in touch with all that we were doing; he had always been so keen over our work, so heartily interested in all that was of interest to us, and so quick in sympathy. Neither was it only the quickness of his sympathy that we remember, but its amazing width. He understood everybody, even the rich, who are harder to understand than the poor. He influenced for good the national love of sport; he helped to keep it wholesome and honourable. All sorts and conditions of men, rich and poor, young and old, wise and foolish, are the better for the example of his broad humanity. To us medical men the loss came with special sharpness, for we knew his steady interest in our work. He was always glad to learn how we were getting on; he was, one might say, inquisitive to hear the latest news of our science and our art. That old quotation, *Nihil humani a me alienum puto*, was singularly true of him; with a sort of restless interest in his fellow men he taught himself all that the world was doing; he was able to estimate its hopes and fears, its pleasures, pains, and achievements. And our labour was perhaps that which he chiefly liked and respected. The King's Hospital Fund is but one instance of the help that he gave to our work, for he has shown to our profession many other proofs of his goodwill for us. So far as he could he followed, with careful attention, the development, in the last half-century, of the medical sciences, and their application in practice. No man better understood the uphill strain of the medical man's life, its anxieties and its happiness. In the times of his own illness he was a good patient, brave and hopeful, and bearing pain well, courteous to all about him, and grateful to them. What he thought of our profession's services to himself he said, seven years ago, at the opening of the new buildings of the London Hospital: "I wish to record my deep feeling of gratitude to this hospital, which at the time of my severe illness provided me with so distinguished a surgeon as Sir FREDERICK TREVES, with an anæsthetist in Dr. HEWITT, and with two such nurses, Nurse HAINES and Nurse TARR, whose unceasing attention I cannot sufficiently praise. I declare this building open, and may GOD's blessing rest on all who come to it for aid and on all who work in it." On his own

work assuredly GOD'S blessing rests; and may it rest in no less abundance on the heavy and incessant work of our present KING.

The Rôle of Comparative Anatomy in Medical Research.

A CENTURY of progress has completely altered the attitude of medical men to the study of comparative anatomy. At the close of the eighteenth century the generation raised under the HUNTERS and the MONROS gave it a chief place in the medical curriculum. At the beginning of the twentieth century we find it given a secondary place; indeed, there are many who would remove it from the medical curriculum altogether. This remarkable change in attitude is not due to fickleness in our medical leaders; it is a result of the revolution which CUVIER, DARWIN, OWEN, and HUXLEY effected in the minds of comparative anatomists. HARVEY, HUNTER, and MONRO were physiologists who used the study of anatomy as the means of ascertaining function, but their pupils and traditions were carried away in that great flood of morphology and evolution which swept the biological world in the nineteenth century, and the study of function sank out of sight. Comparative anatomy, so far as medical men were concerned, was emasculated. Hence the present attitude towards it. But there are distinct signs of a return to the methods and aims of the older anatomists; and we may cite the Hunterian Lectures[1] of Dr. R. H. PARAMORE on "The Evolution of the Pelvic Floor" as an instance. There have been numerous and excellent studies of the musculature of the mammalian pelvis of late years; we may instance the monographs of HOLL, of LARTSCHNEIDER, and of THOMPSON. They are concerned with the exact disposition of the muscles, their development and genetic relations; the part they play in the economy of the animal—the subject most worthy of study—is scarcely noticed. Dr. PARAMORE has made the study of function the first aim of his inquiry. In tracing the rise and development of the pelvic musculature in the various forms of fishes, its modification in amphibians, reptiles, and mammals, his attention is always directed to the life habits of the animals studied; the key to the modifications of the pelvic musculature can be thus obtained. He is able to show conclusively that the levator ani is not, as is now usually taught, a modification of the flexor muscles of the tail, but is, and always has been, part of that ventral sheet of musculature (represented in man by the rectus abdominis) which is concerned in regulating the pressure within the abdomen and in supporting the contents of that cavity.

The problem of the origin of the levator ani is, therefore, in Dr. PARAMORE'S opinion, part of the larger question, What are the origin and function of the musculature of the abdominal parietes? The subject is one which has received much attention of late, particularly in England. Dr. LEONARD HILL has demonstrated the importance of the abdominal musculature in regulating the amount of blood in that cavity; the musculature has a circulatory function. The lectures[2] of Professor A. KEITH served to again direct attention to the part the abdominal muscles play in the mechanism of respiration and in supporting the abdominal viscera. The researches of Dr. HENRY HEAD, Dr. JAMES MACKENZIE, and others, particularly of Professor C. S. SHERRINGTON, have partly revealed to us the complex nerve mechanism which coördinates the action of the parietes of the abdomen with the state of the contained viscera. The importance of such investigations for clinical work cannot be over-estimated. Dr. PARAMORE'S lectures serve to broaden the basis on which our knowledge may be further extended.

The rôle of comparative anatomy in medical research is not to furnish the final evidence of physiological truths; these can be obtained only by observations on living animals in which definite lesions have been established either by design or by disease. Comparative anatomy is suggestive rather than conclusive. The existence of a muscular connexion between the auricles and ventricles in the hearts of the lower vertebrates led to the search for, and discovery of, the auriculo-ventricular bundle in the human heart. Comparative anatomy suggested it as the path for auricular impulses; experiment demonstrated that this was so, and thus the pathology for Stokes-Adams disease was established. A remarkable instance came to our knowlege the other day, leading to the discovery, as yet unpublished, of a new structure in the human brain. The anatomist saw it first in fishes, and following it throughout the animal kingdom learned its existence in the human central nervous system.

It will be observed that Dr. PARAMORE pays particular attention to certain forms of fishes—the Selachian or Shark order and the Dipnoi. At first sight it seems a "far cry" from the dog-fish to man. But thanks largely to the labours of the late FRANCIS BALFOUR, we recognise that the stem from which man has sprung has remarkably close relations with that low vertebrate stock which our humble friend—the dog-fish—has served to perpetuate through long geological periods. The condition of hare-lip and cleft palate is evidently a heritage from the Selachian stock The existence of a representative of the fourth chamber in the human heart was postulated on BALFOUR'S researches on the Selachian embryo; proof of the correctness of the suggestion is furnished by Professor KEITH'S lectures on "Malformations of the Heart."[4] The Dipnoi are also likely to yield most valuable suggestions. Professor G. ELLIOT SMITH[4] found in their brains the commencement of that most characteristic and wonderful of all human structures—the cerebral cortex. The splendid researches of Professor GRAHAM KERR of Glasgow on the development of the Dipnoi will, in course of time, yield results directly applicable to man. Those familiar with the physiological series of specimens in the Museum of the Royal College of Surgeons of England are aware how fully HUNTER had realised that the study of the lower vertebrate forms provided sure keys to the more abstruse problems of human physiology. The official lectures delivered recently before that College by Professor KEITH and Dr. PARAMORE are excellent records of work done on that very line.

[1] THE LANCET, May 21st (p. 1393), and p. 1459 of the present issue.
[2] THE LANCET, March 7th (p. 631) and 14th (p. 709), 1903.
[3] THE LANCET, August 7th (p. 359), 14th (p. 433), 21st (p. 519), 1909.
[4] THE LANCET, Jan. 1st (p. 1), 15th (p. 147), and 22nd (p. 221), 1910.

Annotations.

"Ne quid nimis."

THE SALARIES OF WHOLE-TIME MEDICAL OFFICERS OF HEALTH.

WHATEVER may be the economical value of health and physical efficiency to the community, a large number of the sanitary authorities in the country seem to assess the services of their official health adviser at such an absurdly low figure that we are led to wonder whether, if the employment of a medical officer of health was not a statutory obligation, certain sanitary authorities would make any such appointment. It seems, in fact, as if some sanitary authorities were so obsessed with the idea of economy that they are quite unable to breathe the atmosphere of sanitary educational advance which is permeating our national social existence of the present time. Otherwise it is difficult to understand how the Walsall town council, which has been nominally appointed to govern a population of about 100,000, can for a moment believe it reasonable or equitable to expect a medical officer of health to carry out his duties as a whole-time officer for the slender income of £400. But not only is this the proposal which is actually being made, but the officer elected, if there are any candidates, will be expected, in addition, to act as police surgeon and as school medical officer, while all fees received by him for post-mortem examinations or for furnishing evidence in law courts are to be paid to the borough fund. Although the stipend is to be raised annually by £25 until £500 per annum has been reached, we can hardly believe that the Local Government Board will be likely to sanction the initial salary, and if the town council adheres to its unfortunate proposal it is to be hoped that the appointment will not receive official recognition. It appears that owing to the illness of the present medical officer of health the council has been content to leave the work largely in the hands of the chief sanitary inspector, which means perhaps that in its opinion questions of preventive medicine rank merely with questions of filth nuisance. The sum suggested would be none too great if offered for the supervision of the medical inspection of the school children of a population such as Walsall has, and we are left to wonder how much it is proposed to give the officers who actually carry out the inspectorial work. Walsall is made up largely of a working-class population of a character which needs constant supervision by the department over which the medical officer of health presides. With the enormous addition of work which devolves upon the health department under the Housing and Town Planning Act as well as under much recent legislation—such as the Midwives Act, and regulations in connexion with the reduction of infantile mortality—it is really quite impossible that the responsibilities can be properly undertaken by an officer who has to defray all his own travelling expenses out of such an inadequate stipend as £400 per annum. We are afraid that the council may not have had the multiple duties of a present-day medical officer of health and school medical officer of a town with 100,000 people explained to it, as otherwise how could such a salary be proposed? The town clerk of Walsall, we believe, is paid £1000 and the gas manager £650. Such a proposition is tantamount to a relative degradation of the status of the public health, and perhaps the Local Government Board and the Board of Education will be able to dissuade the Walsall town council from pursuing its project further. It would be better to keep the office of medical officer of health and school medical officer separate than to amalgamate them in a large town such as Walsall for a total salary of £400. Both these offices should be held by men exercising considerable influence, and this will be rendered impossible under the Walsall proposal.

THE TARNOWSKA TRIAL.

IN a recent discussion on the European State system and its dominating factors a Scandinavian publicist professed to give the following as not only his own opinion but that of many of his compatriots: "The Latin civilisation is effete; the Teutonic has reached its culmination and is now on the descending curve of the parabola; the future belongs to the Slav." To this sweeping generalisation it was objected by another interlocutor that the Slav had taken so kindly to Southern and Western vices that his power of regenerating or rehabilitating his lapsed or lapsing brethren of the south or west was seriously impaired. The Scandinavian replied that the indulgence in these vices was but a passing phase, to disappear under the health-giving, bracing effect of representative institutions, from which the Slav would emerge as a new civilising force, with virtues and, in time, with vices of his own. It was this last admission that gave an opportune turn to the conversation, inspired, as it was, by the strange trial now closed at Venice, in which the protagonist Madame Tarnowska (a Russian lady with an Irish strain in her progeniture) and the two subordinates who "played up to her," Donato Prilukoff and Nicola Naumow, were criminal types, unfamiliar even to Italian or German tribunals, premonitory, moreover, of what the forensic and the law-giving mind may yet have to encounter as new departures to be dealt with when the Slav comes to his own. For wellnigh three months the sombre drama has evolved itself before the assizes at Venice, prosecution and defence, reinforced by the amplest expert opinion, exhausting their resources under a presiding judge of exceptional ability and experience; till at length, after a comprehensive and elaborate summing up, the jury of 12 Venetian citizens has emitted a verdict which seems to have satisfied no one—least of all the "man in the street"—whose hisses and howls of indignation were audible even by the convicted trio as they passed from the dock to the cells. It is impossible to recapitulate here the long, the complicated, story which has dragged its slow length through the journals, Italian and Continental, for the space of 12 weeks. Suffice it to state that in Madame Tarnowska has been revealed a character in some respects quite novel in the annals of crime—a woman in whom sensual instincts of the most imperious and compelling force co-existed with a cool, calculating judgment which acknowledged seemingly every restraint, except that of conscience. "La donna fatale," as the Italian press denominates her, combined with the impulsive pleasure-seeking of a Cleopatra the stern purpose and the remorseless energy of a Clytemnestra or a Lady Macbeth, bending to her will an able, circumspect, and prosperous barrister like Prilukoff till, from sheer devotion to her, he abandoned wife, household, and career to become her tool, and not only her tool, but her sympathising assessor in her schemes for money-making and sensual indulgence, almost equalling herself in fertility of expedient and clandestine device for the gratification of both. Coöperating with her in her plan to get rid of her husband, seemingly a kindly, weak man, he had to see himself practically superseded by another infatuated devotee in her service, the youth Naumow, over whom she yielded such a spell that we find him prepared not only to be the assassin (which he actually came to be) of his dear friend her husband, but pledging himself to commit suicide if, by so doing, he could protect her in any way or baffle the retributive justice she dreaded. It is in the slavish response of

these two—Prilukoff and Naumow—to her imperious, if often-shifting, methods that much of the interest in the drama centres—a response that exercised the resources of the eminent psychiatrists retained for their defence in endeavouring to account for it. Both, particularly Naumow, were addicted to powerful sedatives and stimulants, alternately antagonising each other, their effects impairing the resisting force of either victim to that yet more subtle and coercing "sedative *cum* stimulant" embodied in Madame Tarnowska herself, who, even at a distance of many days' journey, could by the telegraph or the telephone, command their presence or their coöperation at whatever the self-sacrifice imposed on them. Playing the part of a Circe or (by proxy) a Clytemnestra, she could be as overwhelmingly seductive as the one or as ἀνδρόβουλος (man-minded, to quote the Æschylean epithet) as the other, till she made the astute barrister an accomplice in the assassination effected by the cultured youth on his friend her husband—both barrister and youth, moreover, being ready to "get rid of each other" by any means if only to secure the chief place in her affections. In her case, as in theirs, the experts in psychiatry left no argument untried to minimise "responsibility," and the vocabulary of their *métier*, when the official report of the *cause célèbre* is published, will be found to have added to its resources a terminology which would have proved strange to the arch-priest of psycho-criminology, Cesare Lombroso himself. That report must see the light before a scientific appreciation of the pleading *pro et contra* is practicable. Meanwhile the verdict which condemns Prilukoff to ten years' imprisonment, Madame Tarnowska to eight years and three months, and Naumow to three years is accepted as "provisional" merely, till the Court of Cassation, to which the trio have appealed, retraverses the whole evidence. But pending that Court's decision the Italian press, with few exceptions, is convinced of the inadequacy of the punishment, quoting the well-known exclamation of its Dean, Antonio Gallenga, when a "belva umana" (human wild beast) escaped the penalty of the coolest and most atrocious of murders with a limited term of imprisonment: "Accursed be the man who invented 'attenuating circumstances.'"

THE TRAINING OF NURSEMAIDS.

THE Women's Industrial Council has for some time past been endeavouring to induce public bodies to adopt a scheme of training working-class girls as nurses for children. With the object of affording a practical demonstration of a scheme for this purpose it is proposed to rent a house which will be opened as a day-nursery for the children of mothers who are obliged to go out to work, and this nursery will be used for the training of working-class girls in the proper care of children. The girls will live in the house, and in addition to their training in infant management under the matron, will receive practical teaching in housework, cookery, laundry-work, needlework, and so forth, under a trained domestic economy teacher. It is also proposed to include in the scheme "infant consultations" for those mothers who are able to look after their own babies, and an evening club for working girls of the neighbourhood. It is, of course, recognised that such a home cannot be entirely self-supporting, and it is estimated that the initial expenses of fitting up and furnishing a house with accommodation for 20 girls and their teachers will necessitate an expenditure of £1000. It is to be hoped that the scheme will not be allowed to fail from lack of financial support, and we are glad to notice that it has already received the approval of many men and women interested in reforms which have for their object the social welfare. On Monday, June 6th, at 5 P.M., a drawing-room meeting will be held at 25, Cavendish-square, London, W., by the kind permission of Lady Horsley, when the objects of a crèche which the Women's Industrial Council is starting at Hackney will be explained. On June 2nd Miss Evelyn March Phillips will deliver a lecture on "Old Italian Villa Gardens," with lantern illustrations, at the house of Lord and Lady Brassey, 24, Park Lane, at 8.30 P.M., in aid of the funds for the crèche. Apart from the undoubted benefit to the community as a whole which would result from the active operation of a scheme of this kind, the individual benefit to the girls themselves in fostering the domestic instinct and love of children, which are too often starved owing to modern industrial conditions, should also be great. Further particulars can be obtained from the secretary to the council, 7, John-street, Adelphi, London, W.C.

THE EYE OF THE SCALLOP.

A LONG and interesting article by the demonstrator of zoology in Belfast, Mr. W. J. Dakin, on the Eye of the Pecten Jacobæus or Scallop, appears in the last number of the *Quarterly Journal of Microscopical Science*, in which we see Nature making an early essay, trying her 'prentice hand in a bivalve mollusc at the greatly perfected eye of the mammal. Mr. Dakin's researches were pursued at Naples and also at the Port Erin biological station. He used, and gives the composition of, a great variety of staining fluids. The eyes of Pecten occur on the free border of the middle fold of the mantle edge of both valves; a larger number are present on the upper mantle lobe—that is, more on the left valve than on the right, the left valve being the uppermost. The eyes vary in size. Anomalies are not uncommon, as, for example, the fusion of two eyes and defective pigmentation. Each eye has a short stalk, and appears, as Poli pointed out, to be a modified tentacle. The stalk is composed of connective tissue and is covered by an epithelial layer, both continuous with that of the mouth. A few unstriated muscular fibres permit slight movements to be made, which are in strong contrast with the free movement of the tentacles. In addition the stalk contains blood-vessels and a nerve. At the end of the modified tentacle the stalk swells slightly and is occupied by the optic vesicle. The surface of the swelling is covered by a pigment mantle composed of pigmented columnar epithelium, which is replaced by unpigmented columnar epithelium over an area corresponding to the cornea. The cells of the cornea rest upon a pellucid, finely laminated true cornea. Immediately behind, and in contact with the posterior surface of the pellucid cornea-like structure, is the circular biconvex lens, of which the distal surface is nearly flat. The space in which the lens is suspended is bounded in the fore part by the connective tissue wall of the optic vesicle, the subcorneal layer of the same, and behind by the septum, which is a connective tissue membrane separating the dioptric part of the eye from the retina. The lens is composed of cells of irregular form and variable size, usually flattened near the surface, elsewhere often pyriform with a long process. The retina covers half the interior of the optic vesicle. It is made up of two layers of recipient cells innervated by two branches of an optic nerve, an anterior layer of distal sense cells having each a comblike margin with their interstitial supporting cells, and an inner layer of rod cells and their continuations, the rods also having interstitial supporting cells and an axial neuro-fibril. The distal surface of the retina is bounded by a single layer of cells, the distal sense cells, the outer ends of which are directed towards the septum, and are broad and bear cilia-like processes, so that a space exists between septum and cell layer, which is crossed by the nerve fibres from the

distal nerve, and filled by the processes of the cylindrical distal cells; their lower ends are rounded and in some instances appear to end in a short-pointed process. The cell contents are finely granular. Between the cells pass branches of the distal nerve, which can be traced with care through the septum, but with difficulty beyond; they probably terminate in the cells, not by becoming continuous with the cilia-like process, but as an axial fibril running towards the base. The rod cells lie in a matrix of tissue containing oil globules. The retina also possesses bipolar nerve cells which are interstitial supporting cells. Below the rod matrix which underlies the rods is a limiting basement membrane. Beneath the retinal layers is the tapetum, consisting of polyhedral cells reflecting a silvery light. Finally, there is a pigment layer corresponding in position to the choroid. The retina is innervated by two branches of an optic nerve which passes down the centre of the eye stalk and arises from the visceral ganglion. The retina of pecten is of the inverted type, like that of the vertebrate eye, the recipient bodies or rods being directed away from the light. The retina is made up of two series of recipient cells innervated by two branches of an optic nerve, an outer layer of distal sense cells, and an inner layer of rod cells; both layers possess interstitial supporting cells. The illustrations show the optic nerve dividing near the capsule into two branches, one of which continues its course to the sclerotic, whilst the other passes to a point midway between the cornea and the back of the capsule, then penetrates the capsule, and, running in front of the retina, gradually thins out by giving off branches which enter the retina and terminate in the anterior sense cells and the posterior layer of rods. It is curious to see so highly organised a structure in one of the lamellibranchs.

HOSPITALS IN SHIPS AT SEA.

THERE has reached us, in the reports of the International Medical Congress[1] held at Budapest, a very interesting paper on the Hospital Establishment of Passenger Ships by Dr. Dupuy and Dr. Villejean, who know their subject, as they have both been to sea in the French Emigration Service. They give us excellent plans of the hospital establishments on board French ships of all kinds, from the sailing schooner *Notre Dame du Salut*, hospital ship for the fishermen of St. Pierre and Newfoundland, to the *Loire*, with her large accommodation for sick convicts, and the extensive range of hospital cabins in the new ships *La France* and *La Plata*. The writers note and lament that the French law demands fewer beds than do the laws of other nations, but in view of the efforts made and being made by shipowners, this is no time for despair. In their latest plan, that of the hospitals in *La Plata*, one of a group of four new ships, we find 20 beds for women, 22 for men, besides an isolation hospital with 10 beds for men and 8 for women—all on the upper deck, and apparently at the fore-end of the superstructure, while on the deck above the medical officer has his consulting-room which in emergency can be used for an operating-room. Besides all this, most recent French ships seem to have one or two cabins for lunatics. It would be a pity to press just now, as the authors desire, for an increase of the beds required to be provided from 2½ to 6 for each hundred of passengers and crew, especially when shipowners are paying more attention to sanitation, and illness at sea is decreasing, as shown by the statistics of our own and other navies. It would be better to utilise the money which more beds would cost for purposes of sanitation and endeavour to keep the passengers from using even the existing beds. Dr. Dupuy and Dr. Villejean have made a thorough and most careful study of the whole question, as is shown by the tale of the improvements they desire, including a special operating-room, a mortuary, also to serve as post-mortem room, and a bacteriological laboratory. This last need, we may say, is met in Germany by a recent order that every passenger ship going abroad shall carry a microscope and a bacteriological equipment. These are contained in a nickelled box, some $18 \times 12 \times 9$ inches, and besides the microscope and the slides there are enclosed stains, tubes of media, capillary and other glass tubes, and so on. We are thoroughly in accord with the authors in their desire for a steam disinfector on board every ship, and for better lodging for the hospital attendants than they usually get; and we are much obliged to them for telling us how great are the advances recently made in the French Mercantile Marine.

[1] Section XXI., 2me Fascicule at pp. xiv. and 212.

A SIMPLE TEST FOR BLEACHED FLOUR.

THE bleaching of flour by chemical oxidising agents has been condemned by more than one physiological authority on the ground that the process interferes with the nutritive value of the protein. The public in its silly and ignorant craving for a spotlessly white loaf encourages the practice. The intelligent man will not regard the whiteness of the loaf as an evidence of its purity. Fortunately, it is within the power of all to apply a simple test for flour that has been bleached. Wheaten flour possesses a natural yellow colouring matter which is soluble in petrol and therefore if a little unbleached flour is shaken up with petrol it imparts to the spirit a yellow colour. Bleached flour similarly treated leaves the spirit quite white. About half an ounce of flour shaken with two fluid ounces of petrol suffices. The test should, of course, be conducted away from any flame, since petrol is highly inflammable.

ACUTE PULMONARY ŒDEMA AS A TERMINAL EVENT IN EPILEPSY.

ACUTE pulmonary œdema has not received much attention until recently and is unmentioned in many text-books. In the *American Journal of Medical Sciences* for March Dr. A. P. Ohlmacher reported five cases in which it was a terminal event in epilepsy. It occurred under various conditions—accompanying a single major fit and soon followed by death; after a single attack with death at a longer interval; after series of fits not reaching the status epilepticus, and hastening the status epilepticus to a fatal termination. Dr. Ohlmacher suggests that in the not uncommon cases in which epileptics are found dead in bed death is due to pulmonary œdema after one or more fits rather than to mechanical asphyxia by the bed-clothes, as is commonly believed. The following are two of his cases. A female, aged 19 years, was admitted into the Ohio Hospital for Epileptics in 1896. She had suffered from fits since the age of 17 years. There were seldom more than one or two fits in the 24 hours, but a month rarely passed without a major attack. She was sane and above the average epileptic in intelligence, and her general health was good. On April 8th, 1899, she went to bed in her usual health at 8 P.M. Half an hour later a major attack occurred. When seen soon after the fit began she lay unconscious on her back; the breathing was loud and stertorous; a thin foamy fluid escaped from her mouth and nose. At times the fluid was pinkish, and when she was turned on her side a gush amounting to about two ounces would follow. The respirations were from 16 to 20 and coarse râles were audible at a distance from the chest. The skin was cold and clammy and the pulse was of good volume and only slightly accelerated. The breathing became short and gasping and death took place at 10 P.M., 1½ hours after a single epileptic attack. At the necropsy large gushes of frothy fluid escaped

from the mouth whenever the body was moved. The lungs were waterlogged and bubbly serum flowed from them when they were incised. The thymus, lymphatic glands, and spleen were enlarged. In another case, a man, aged 22 years, the subject of grand mal and incipient epileptic dementia, while in his usual health, after eating a hearty supper, had a fit and fell forcibly on his head. He did not breathe properly after the convulsive phase of the attack, and when seen by the resident physician there was urgent dyspnœa with frothy fluid escaping from the mouth. The breathing became more laboured and death occurred 20 minutes after the attack. At the necropsy foamy blood-stained fluid gushed from the mouth and nose when pressure was applied to the chest. The lungs weighed as much as 2170 grammes, and on section showed reddish, œdematous infiltration. The thymus, tonsils, lymphatic glands, and spleen were enlarged. In all the five cases similar changes to those described were found at the necropsy, and there was neither renal nor cardiac disease. Dr. Ohlmacher concludes that acute pulmonary œdema occurs in epilepsy which is associated with the status lymphaticus. As to the frequency of acute pulmonary œdema in epilepsy, the statistics of the Ohio Hospital show that in 1903–05 203 epileptics died. In 41 cases death followed a single epileptic attack or was otherwise sudden; for example, the patient was found dead in bed. Of these 41 cases œdema of the lungs was found in 13. In the same period 41 patients succumbed to the status epilepticus, and œdema of the lungs was found in 15.

THE SALE OF POISONS.

THE administration of the penal clauses of the Pharmacy Acts is one of the most important duties of the Pharmaceutical Society, and at the society's sixty-ninth annual meeting some interesting details of the work which the carrying out of this duty entails were given. Last year the council investigated 1360 cases of alleged infringements of the Acts, but in only 155 instances was it found necessary to institute legal proceedings. In the vast majority of these cases the offences consisted of the sale of poisons by unqualified persons or the keeping open shop for the sale of poisons, while in a few cases the offence was the non-observance of the formalities which the law requires to be fulfilled in selling poisons. With very few exceptions the society was successful in recovering a penalty of £5 from each offender. The society's law costs last year amounted to £835 6*s*. 10*d*., an increase of no less than £500 on the previous year, and as the President remarked in his address to the members, this expenditure is very satisfactory from one point of view, but very unsatisfactory from another. On the one hand, it points to an endeavour by the council to administer with reasonable vigour the statutes relating to the sale of poisons and the conduct of chemists' shops. "On the other hand," said the President, "it scarcely seems fitting to make the members of the society bear the whole cost of fulfilling this valuable public duty. The 1360 cases taken up last year were equivalent to so many arrests of public dangers, yet for this police duty the general community, and a large minority of the pharmaceutical body, contribute nothing." During the year the society was unsuccessful in an important appeal case, the High Court deciding that it is not illegal for an unqualified person to call his place of business a "pharmacy," notwithstanding that it is an offence for such a person to call himself a "pharmacist." Referring to this decision the President said that the position in regard to the use of place names which are mere variants of professional titles could not be permitted to remain as it is, and he intimated that it was the intention of the council to take steps to secure, if possible, the removal of the anomaly. After the administration of the law relating to the sale of poisons, the next most important duty of the society is the conducting of the pharmaceutical examinations. The two functions are, in fact, closely related, for the main purpose of the examinations is to ensure that persons who keep open shop for the sale of poisons shall be qualified by training to be entrusted with the handling of potent drugs. Some idea of the searching character of the qualifying examination may be obtained from the fact that of 1060 candidates who were examined last year only 397, or barely 38 per cent., were successful. The large percentage of failures is due, to an appreciable extent, to deficiency in training. The remedy for this is to make it essential that every candidate before being allowed to enter for the examination should have undergone a recognised systematic course of instruction in the subjects in which he is examined. Until the coming into force of the new Poisons and Pharmacy Act on April 1st last year the council, however, had no power to enforce the training of candidates, but that Act empowered the society to make by-laws: (1) requiring persons desirous of presenting themselves for examination to produce satisfactory evidence that they had received a sufficient preliminary practical training in the subjects; and (2) providing for periods of time and courses of study in connexion with the qualifying examination, and dividing such examination into two parts. According to the annual report, which was adopted at the society's last meeting, the council now has under consideration the formulation of such by-laws. The board of examiners has been asked to advise as to the establishment of a compulsory course of systematic training, and the report will be referred to a special committee, which will probably deem it advisable to take into consultation those engaged in the teaching of pharmacy. Another way in which the new Act empowers the society to make better provision for ensuring that the sale of poisons shall be under more efficient control is by requiring that in every shop kept open for the sale of poisons the certificate of the qualified person in charge shall be conspicuously displayed. Last year 4244 shops were inspected with the view of ascertaining whether the law in this respect was being obeyed, and in a small proportion of instances only was it found that the requirements of the new Act were not complied with. A year's experience of the working of the new regulations seems to show that the sale of poisons is now capable of being placed under better control than was formerly the case.

THE PART PLAYED BY NON-TUBERCULOUS MEAT IN THE DIFFUSION OF TUBERCULOSIS.

THE danger of contracting tuberculosis from consuming the flesh of a tuberculous animal is now well recognised. At a meeting of the Académie de Médecine of Paris on April 5th, M. G. Linossier and M. G. H. Lemoine showed that similar danger may arise from consumption of the infected flesh of non-tuberculous animals—a fact which has not previously received attention. In investigating the effect on the kidneys of guinea-pigs of the subcutaneous injection of macerated beef they were surprised at the number of the animals which died from tuberculosis. Nothing similar occurred among animals which were given subcutaneous injections of serum, milk, or white of egg. The beef used was bought in good shops and had been submitted to veterinary inspection at the abattoirs. It certainly was not tuberculous. The conclusion was that it must have been accidentally contaminated. The researches of Decker show that there is great diffusion of tubercle bacilli at the abattoirs.

Of 13 butchers' knives he found that 10 were contaminated with tubercle bacilli and of 9 inspectors' knives 3. On the ground and the walls of the slaughtering rooms the bacilli were found in 6 out of 25 experiments. Evidently the beef used in the injections had been contaminated at the abattoir by contact with the knives or hands of the butchers, the ground, or even with organs condemned as tuberculous by the inspectors. In order to verify this hypothesis a piece of rib beef and a piece of sirloin were taken from animals affected with pulmonary tuberculosis. Here the chances of contamination of the healthy muscles with tuberculous matter in cutting up the carcass would be great, and if this occurred the bacilli ought to be found only on the surface of the meat. This was found to be so. 16 guinea-pigs were inoculated with macerated portions taken from the surface of the two pieces of meat. 11 died from tuberculosis in from six weeks to two months. The remaining five died within eight days from an intoxication which was found to follow not only injections made from meat but from all animal foods such as eggs, milk, &c. Six guinea-pigs were inoculated from the central part of the meat. Four died within eight days and none died from tuberculosis. Finally, 16 guinea-pigs were inoculated with the same meat after it had been placed in an oven at a temperature of 180° C. sufficiently long to cook it to a depth of 3 millimetres. None died from tuberculosis. It follows that even slight cooking prevents any danger of contracting tuberculosis from sound meat, but the danger exists if meat is consumed raw, as it sometimes is for therapeutic purposes. M. Linossier and M. Lemoine suggest that measures should be taken in abattoirs to prevent all contact, direct or mediate, between sound meat and tuberculous organs.

THE ROYAL COMMISSION ON MINES.

THE announcement that the King, on the recommendation of the Secretary of State for the Home Department, has approved of the reconstitution of the Royal Commission on Mines, for the purpose of inquiring into the health and safety of persons employed in metalliferous mines and quarries, will be received with general approval. We may be sure that the question of rescue apparatus will occupy much of the attention of the Commission. The new Commission will be composed as follows: Sir Henry Hardinge Cunynghame, K.C.B., Vice-President of the Institute of Engineers and Assistant Under-Secretary to the Home Office (chairman); Mr. R. A. S. Redmayne, F.R.S., Chief Inspector of Mines; Dr. J. S. Haldane, F.R.S.; Mr. John S. Ainsworth, M.P.; Mr. R. M. Greaves; Mr. R. A. Thomas, general manager of the Dolcoath Mine, Cornwall; Mr. R. T. Jones, secretary of the North Wales Quarrymen's Union; Mr. William Lewney, secretary of the Furness Iron Ore Miners' and Quarrymen's Union; and Mr. U. Lovett, secretary of the National Union of Quarrymen. Mr. T. E. Bettany and Mr. G. W. Chrystal will act as joint secretaries of the Commission.

WE understand that Sir Thomas Barlow, President of the Royal College of Physicians of London, has been nominated by the selection committee to be the President of the International Medical Congress, which meets in London in 1913. Dr. W. P. Herringham has been nominated to be the General Secretary. The nominations will go before the general committee for confirmation.

Mr. J. Herbert Parsons, D.Sc., F.R.C.S. Eng., will deliver an address on Some Effects of Bright Light upon the Eyes, at the meeting of the Ophthalmic Section of the American Medical Association at St. Louis, Mo., on Wednesday, June 8th.

Mr. D'Arcy Power has been elected a corresponding member of the Budapest Royal Society of Medicine, the oldest scientific body in Hungary, in recognition of his services as honorary secretary of the National Committee for Great Britain and Ireland of the Sixteenth International Medical Congress.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Wind Shields and Wet Weather.

GLASS wind screens are immensely convenient, but though few care to dispense with them they have disadvantages, and, of course, if an accident occurs they may form an added danger. A common trouble is clouding in wet or cold weather, and to obviate this inconvenience the folding wind screen has been introduced. Practically it is impossible to drive with the front glass fully up in wet weather, and the usual divided screen when the top half is down gives very little protection against rain. The "Pioneer" is a divided screen, the top glass of which is automatically raised by telescopic tubes fitted with springs and regulated to the required line of vision by thumb screws, which can be set at such an angle that the vision is not impeded, while the occupants of the front seats are protected. Messrs. Lowe, Bevan, and Co., of Birmingham, who are the inventors of this device, also manufacture the "Kenilworth" and the "Perfection" screens, which also provide fair protection without view obstruction to the other passengers. Messrs. Auster of Birmingham, Messrs. Morgan and Co., Limited, of 10, Old Bond-street, London, and the Gordon Carriage Works of Peckham, among others, turn out excellent divided screens, the feature of which is that the bottom half can be regulated at any angle required, and the upper part fixed in an upright position or angled towards the steering wheel. Another pattern provides an oval opening in the upper half, which is exactly in the line of the driver's vision. On some straight shields a sort of squegee is fitted, and by means of an easily reached handle the glass can be cleaned if it becomes cloudy. Moistening the glass with glycerine, or painting on a mixture of equal parts of alcohol and glycerine, or wiping with a cloth dipped in paraffin all serve to maintain clearness and transparency, as most chauffeurs know.

Some Points on Hoods.

On cars with the Cromwell type of screen it is well to specify when ordering a Cape-cart hood that a "five stick" should be supplied. Otherwise the makers fit on the ordinary four-stick pattern, and with these hoods the fore support projects across the entrance to the front seats, and then the driver will discover that entrance and exit from the front seat needs a certain acrobatic skill and is not a dignified proceeding. The five-stick hood allows ample room. The usual material for a Cape-cart hood is a double layer of a kind of drill, and between the two a sheet of fine mackintosh is generally placed. This material looks well, but if the hood if frequently lowered the inner mackintosh is apt to crack, and then at that part it is no longer waterproof. A much better wearing substance is a chemically treated canvas, this is thicker, does not crack, and is always rainproof. Leather hoods, like those on horse-drawn vehicles, need attention if cracking is to be prevented. Most saddlers keep a special preparation which, if occasionally rubbed in, will obviate fissures.

A Simple Pocket Tyre-tester.

The care of the tyres is an important point, and there can be no doubt that correct inflation of tyres does more than anything else to prolong the lives of these expensive articles. Most tyre gauges are expensive and somewhat cumbersome, and many motorists will welcome the Twitchell tyre-tester, for which Messrs. Brown Brothers, Limited, of Great Eastern-street, London, have taken over the agency for the United Kingdom. The device consists of a small cylinder, at one end of which is a pin for depressing the plunger of the tyre which is to be tested; at the other extremity is a rod on which is marked the pressure in pounds; the air in the

tyre blows out this piston, which thus shows the pressure in the tube in pounds. The instrument is so small that it can be carried in the waistcoat pocket; it is accurate, simple, cannot get out of order, and can be applied in two seconds. I believe that many large motor companies are very favourably disposed towards its use.

The Budget.

The Finance Bill in its last shape contains none of the changes which seem to have been expected in some quarters regarding motors. It enacts that the medical profession shall pay, for cars used for professional use, 1 guinea if the horse-power be under 6½, 1½ guineas if under 12 horse-power, 2 guineas if under 16 horse-power. The only addition is that licences taken out for the year are to cease to have effect on June 30th, and that new ones will have to be taken out on July 1st, but allowance will be made for any duty paid for any period prior to July 1st.

THE LATE KING EDWARD VII.

MANY tributes to the memory of the late King Edward VII. and addresses of condolence with the Queen-Mother and King George V. have been paid during the last week by medical bodies and institutions, in addition to those which we have already recorded or which are mentioned by our correspondents.

At the meeting of the General Medical Council on May 24th, on a motion from the chair, the members all standing, it was agreed unanimously that a humble address to the King should be adopted by the Council and transmitted through the Secretary of State for the Home Department. The sympathy of the Council in the sudden grief which has fallen upon the Royal House and all subjects of the Crown was expressed in the opening sentences of the President's address, and will, in response to a motion which was carried by acclamation, be printed in the minutes of the Council.

The Royal Colleges of Physicians and of Surgeons, Ireland, have both adopted addresses of condolence with King George and the Queen-Mother.

At an extraordinary meeting of the Royal College of Physicians of Edinburgh held on May 12th Dr. W. Allan Jamieson, the President, proposed the two following addresses, which were unanimously agreed to by the Fellows, upstanding:—

To the King's Most Excellent Majesty.

MAY IT PLEASE YOUR MAJESTY,—We, the President and Fellows of the Royal College of Physicians of Edinburgh, humbly approach Your Majesty to express our profound sympathy in the great bereavement which has been suffered by Your Majesty, Your Royal Consort, the Queen Mother, and the other Members of the Royal Family in the death of our much beloved Sovereign, King Edward.

With the nation at large we mourn the loss of one whose life was so conspicuously devoted to the maintenance of peace, not only within the confines of the Empire over which he ruled, but throughout the world.

This influence was achieved in great measure by his unfailing tact, his accurate knowledge of mankind, his geniality of disposition, his gift of recollection and recognition of individuals, and his conspicuous devotion to the discharge of every duty.

To us as members of the medical profession King Edward's active interest in the health of his subjects comes specially home. The influence of his work, as Prince of Wales, on behalf of the London hospitals was felt far beyond London, while the great interest he took in the subjects of cancer and consumption will, we believe, yield abundant fruit in the future.

We most loyally and heartily congratulate your Majesty on your accession to the Throne, and we confidently anticipate that your wide experience of travel and consequent familiarity with all parts of your dominions and their inhabitants will specially appeal to a nation which loves a sailor king.

We hail with satisfaction your love for the country, for field sports, and for quiet domesticity, as a means of directing the trend of thought towards that simpler existence and plainer life on which we, as medical men, lay so much stress.

In assuring your Majesty of our most loyal and dutiful allegiance we warmly express the hope that with your Gracious Queen Consort you may long be spared to reign over a happy and prosperous empire.

Signed in name and under the seal of the Royal College of Physicians of Edinburgh this the Twelfth day of May, One thousand nine hundred and ten year.

Unto Her Majesty Queen Alexandra.

MAY IT PLEASE YOUR MAJESTY,—We, the President, Vice-President, and Fellows of the Royal College of Physicians of Edinburgh, desire to convey to Your Majesty our truest sympathy in the sad and unlooked-for bereavement Your Majesty has sustained. We rejoice in the thought that King Edward was spared acute pain or prolonged and exhausting suffering, and that Almighty God so tenderly took him into His keeping. Your Majesty's address has touched every heart, and we are sure that your wishes therein expressed will be most faithfully and loyally obeyed. It is our earnest hope that Your Majesty may be long spared to a peaceful and much-honoured life among a devoted people.

An eminently practical way of showing honour to the memory of King Edward VII. was that adopted by the chairman and governors of St. George's Hospital, of which the late King was patron. Having in respectful and grateful remembrance the interest which his late Majesty, as founder of the King's Hospital Fund and as patron of a hundred and more hospitals, was pleased to take in all medical charities throughout his kingdom, they decided "as a slight and humble token of respect to the late King and to mark their loyal sympathy with His Gracious Majesty the King," to invite representatives of the larger voluntary London hospitals to be present at Hyde Park Corner during the procession, and for the memorial service in the hospital chapel.

At an extraordinary meeting of the Court of Governors of Middlesex Hospital held on May 13th, under the presidency of the Duke of Northumberland, an address to the King was unanimously passed which contained a reference to the fact that it was largely due to the sympathy and interest which King Edward VII. displayed in every effort made for the alleviation of suffering and the encouragement of scientific research that the Middlesex Hospital cancer charity was established upon its present basis. An address to the Queen-Mother was also adopted at the same meeting.

At a meeting of the board of the Royal Free Hospital held on May 13th, of which his late Majesty was patron, Major Ricardo, the chairman, referred to the great loss which had been sustained by the death of His Majesty King Edward VII., and moved that an address be presented to the King and also to the Queen-Mother.

At an adjourned general meeting of the members of the Royal Institution held on May 23rd, Sir James Crichton-Browne, treasurer and Vice-President, in the chair, a resolution of condolence on the lamented death of his Majesty King Edward VII., the patron of the Royal Institution, was passed unanimously.

The Council of the Royal Sanitary Institute has presented to the King an address on behalf of the members of the Institute, "humbly expressing profound sorrow for the grievous loss which His Majesty and his subjects have sustained by the death of King Edward VII." The address refers to the interest which was always shown by His late Majesty in the physical and social welfare of his subjects.

On May 25th the Royal Meteorological Society adopted an address of condolence and homage for presentation to the King.

At a meeting of the Reading Pathological Society, held at the Royal Berkshire Hospital on May 12th, a resolution which will be sent to the King was unanimously passed. It is a curious coincidence that the Reading Pathological Society was founded in the same year that His late Majesty King Edward VII. was born—viz., 1841.

MEDICINE AND THE LAW.

Browne v. *Honan and Others.*

AN action recently heard by Mr. Justice Jelf and a common jury illustrates the difficulties with which relatives and friends have to contend in cases of mental trouble which do not go beyond the "borderland," but in which they are driven by circumstances to interfere. The plaintiff sued Mr. Honan and two other defendants, keeping a nursing home, for damages for alleged false imprisonment. He had gone to the office of the defendant Honan and complained that he thought he was going mad, and through the intervention and assistance of Honan, who was far from being on intimate terms with him, was placed in a nursing home kept by the other defendants. He was not certified as insane and was not detained by any compulsion in the home, for after being there for a short time he left and went to his flat, afterwards returning to the home, where he had voluntarily made a payment of £6 6*s.* for his own maintenance. In the witness-box he made allegations of hypnotism having been practised on him, but his counsel, at the conclusion of his examination, withdrew the case so far as it concerned the keepers of the nursing home and offered no further evidence. After Mr. Honan had given

evidence denying the charge of hypnotism the jury agreed with the judge that the case should be ended, and found a verdict for the defendants, in whose favour judgment was accordingly given.

Registration of a Death due to a Cause Unknown.

Attention has been called recently to the death of a schoolboy in whose case a medical man was called in after he had been ill for some time and who did not then apparently have time to examine and prescribe. At all events, the gentleman in question, on his return a few hours later, found the patient dead and certified as to the cause of death as follows: "Not known; pneumothorax ten hours; heart failure." Upon this certificate the death was registered without the coroner being communicated with, and the body was buried. It certainly seems strange that a death the cause of which was "unknown" to the medical man who attended the case should have been registered, and, as our contemporary, *Truth*, suggests, further inquiry would be desirable. The registrar was unfortunate in overlooking, as perhaps he did, the word "unknown," and was misled by the form of a certificate intended to express ignorance as to the cause of the symptoms mentioned, but medical practitioners may be reminded that it is open to them to refuse to give a certificate and to leave the coroner to inquire the nature of the case and the cause of refusal.

Falsely Pretending to be a Registered Medical Practitioner.

At the North London police-court recently a man named Henry Werner was prosecuted by the Medical Defence Union for falsely pretending that he was a registered medical practitioner. An unusual feature in the case consisted in the fact that Werner not only attended a man who had taken poison, but after his death gave evidence at the inquest which followed, and when questioned by the coroner replied that he was a registered medical practitioner. At the close of the inquest he signed the expense sheet and received the usual guinea fee of a medical witness. The Medical Defence Union, whose secretary, Dr. A. G. Bateman, noticed the case in the paper, sent one of its officials to call at the address given, and this gentleman asked for "Dr." Werner, who prescribed for him and charged him 5*s.* for so doing. It was further stated that an advertisement appearing in the *Pelican* described the defendant as "Dr. Werner, the celebrated French Specialist." Whatever may be implied by the description "a French Specialist," the defendant does not appear to have alleged any foreign qualification to practise medicine, but only stated through his advocate that he had had "considerable experience on the Continent," and that he thought he was entitled to practise as a medical man in England. It may be observed with regard to such cases that experience on the Continent is not likely to suggest to anyone that foreigners are entitled to practise medicine at will in countries the qualifications of which they do not possess. Mr. Hedderwick, the magistrate who heard the case, called attention to its serious nature and inflicted a fine of £20 with £5 5*s.* costs. The penalty does not appear to be the heaviest to which the acts of the defendant laid him open, but it may serve as a warning to others, and the Medical Defence Union is to be congratulated on the issue, although the thought may occur that a case in which there has been loss of life, and in which an untrue reply has beyond contradiction been made to a coroner as to the essential qualification of a witness, merits the attention and care of the Treasury, instead of which it has been left to a private agency to bring the delinquent to justice.

The Question of Responsibility for Medical Attendance.

At the Liskeard (Cornwall) county court recently Messrs. Hingston, Carter, and Pearse, surgeons, of Liskeard, claimed £14 13*s.* from Mr. H. Scharien of Mayfield, Sussex, for professional attendance upon his daughter. Evidence showed that Miss Scharien, who was staying at Morvah, became ill, and the landlady wrote to the defendant asking if she could call in a medical man, and he instructed her to do so. For the defence it was contended that Mr. Scharien was not liable for his daughter, who was 35 years of age, and he also denied that he had written to the landlady telling her to get medical attention for his daughter. His honour, Judge Granger, K.C., said this was a case which ought to be taken notice of in Cornwall. Numerous invalids were sent there, and care should be taken that persons who sent invalids should give an authority for obtaining medical attendance. His honour added that evidence showed that the defendant had instructed the landlady to employ a medical man, and he gave judgment for the plaintiffs, with costs.

VITAL STATISTICS.

THE VITAL STATISTICS OF ENGLAND, WALES, AND LONDON FOR 1909.

THE annual summary of marriages, births, and deaths in England and Wales and in London was issued on May 24th by the Registrar-General. The marriages in England and Wales during 1909 numbered 260,259, corresponding to a rate of 14·6 persons married per 1000 of the population at all ages. This rate was 0·3 per 1000 below the corresponding rate in 1908 and 1·1 below the average rate in the ten years 1899–1908. The births registered numbered 914,621, and were in the proportion of 25·6 per 1000 of the population at all ages. This rate was 0·9 per 1000 below the rate in 1908, and was lower than the rate in any other year on record, while compared with the average in the ten years 1899–1908 the birth-rate in 1909 showed a decrease of 2·2 per 1000. The deaths registered numbered 518,075, and were in the proportion of 14·5 per 1000 of the population. This rate was 0·2 per 1000 below the rate in 1908, and was lower than the rate in any other year on record. Compared with the average in the ten years 1899–1908 the death-rate showed a decrease of 1·6 per 1000. The diminution of infantile mortality more than counterbalanced an increase in mortality at the other extreme of life.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 9095 births and 4482 deaths were registered during the week ending May 14th. The annual rate of mortality in these towns, which had been 13·7, 13·1, and 13·1 per 1000 in the three preceding weeks, rose again to 13·8 in the week under notice, and was equal to the average annual death-rate in these towns during the first six weeks of the current quarter; in London the death-rate during the same period averaged 13·7 per 1000. The lowest recorded annual rates of mortality during the week in these 77 towns were 4·9 in King's Norton, 5·5 in Walthamstow, 6·2 in Devonport, and 6·5 in Handsworth (Staffs); the rates in the other towns ranged upwards, however, to 19·1 in West Bromwich, 19·7 in Manchester, 20·3 in Merthyr Tydfil, 20·4 in Burnley, and 21·5 in Huddersfield. In London the recorded death-rate in the week under notice was equal to 13·9 per 1000. The 4482 deaths registered in the 77 towns showed an increase of 224 on the low number returned in the previous week, and included 407 which were referred to the principal epidemic diseases, against 364 and 386 in the two preceding weeks; of these 407 deaths, 146 resulted from measles, 138 from whooping-cough, 49 from diarrhœa, 37 from diphtheria, 24 from scarlet fever, 12 from enteric fever, and 1 from small-pox. The mean annual rate of mortality in the 77 towns in the week under notice from these epidemic diseases was equal to 1·3 per 1000, against 1·2 and 1·1 in the two preceding weeks. No death from any of these diseases was registered last week in Rhondda, Derby, Southampton, Norwich, Wigan, or in nine other smaller towns; the annual rates therefrom ranged upwards, however, to 2·9 in Manchester, 3·9 in Burnley, and 5·9 in Bootle and in Merthyr Tydfil. The fatal cases of measles in the 77 towns, which had increased from 97 to 116 in the three preceding weeks, further rose to 146 in the week under notice; they caused annual death-rates equal to 2·0 in Stockport and in Dewsbury, 4·4 in Bootle, and 5·2 in Merthyr Tydfil. The deaths from whooping-cough, which had been 138 and 161 in the two preceding weeks, declined to 138 in the week under notice; the highest death-rates from this disease during the week were 1·2 in Plymouth, in King's Norton, and in Liverpool, 1·3 in Newport (Mon.), 1·5 in Manchester, and 2·4 in Burnley. The 49 deaths from diarrhœa also showed an increase upon recent weekly numbers. The 37 deaths attributed to diphtheria were 7 above the number in the previous week; they included 11 in London, 3 in Portsmouth, 3 in Leeds, and 2 in Stoke-on-Trent and in Liverpool. The fatal cases of scarlet fever, which had been 20 and 24 in the two preceding weeks, were again 24 in the week under notice, and

included 3 each in London, in Manchester, and in Liverpool, 2 in Birmingham, and 2 in Coventry. The 12 deaths referred to enteric fever included 3 in Manchester, 2 in London, and 2 in Portsmouth. The fatal case of small-pox belonged to South Shields. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 30 preceding weeks from 2810 to 1506, further fell to 1476 during the week; 177 new cases of this disease were admitted to these hospitals during the week, against 192 and 197 in the two preceding weeks. Of the 1299 deaths registered in London during the week under notice 233 were referred to pneumonia and other diseases of the respiratory system, against 244 and 211 in the two preceding weeks; these 233 deaths were 19 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 50, or 1·1 per cent., of the deaths registered in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Hull, and in 49 other smaller towns; the 50 uncertified causes of death in the 77 towns in the week under notice included 7 in Birmingham, 5 in Warrington, 4 in Manchester, 4 in Gateshead, and 3 in Stoke-on-Trent and in St. Helens.

In 77 of the largest English towns 6019 births and 4043 deaths were registered during the week ending May 21st. The annual rate of mortality in these towns, which had been equal to 13·1, 13·1, and 13·8 per 1000 in the three preceding weeks, declined to 12·4 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these towns averaged 13·7 per 1000, while in London during the same period the rate did not exceed 13·3 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 6·5 in Handsworth (Staffs), 6·7 in East Ham, 7·0 in Leyton, and 7·4 in Hornsey, the three latter being suburban metropolitan districts; the rates in the other large towns ranged upwards, however, to 19·0 in Newport (Mon.), 22·8 in Stockport, 23·1 in Tynemouth, and 27·5 in Merthyr Tydfil. In London the recorded death-rate last week did not exceed 11·4 per 1000. The 4043 deaths registered last week in the 77 towns showed a decrease of no less than 439 on the number returned in the previous week, and included 400 which were referred to the principal epidemic diseases, against 386 and 407 in the two preceding weeks; of these 400 deaths, 154 resulted from whooping-cough, 141 from measles, 37 from diphtheria, 32 from diarrhœa, 25 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 77 towns last week from these epidemic diseases was equal to 1·2 per 1000, against 1·2 and 1·3 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Plymouth, Birkenhead, Halifax, Swansea, Northampton, or in 10 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Stockton-on-Tees, 3·0 in Manchester, 4·7 in Burton-on-Trent, and 7·2 in Merthyr Tydfil. The fatal cases of whooping-cough in the 77 towns, which had been 160 and 138 in the two preceding weeks, rose again to 154 last week; they caused annual rates equal to 1·8 in Manchester, 1·9 in Burton-on-Trent, and 2·0 in Newport (Mon.). The 141 deaths from measles were five below the number recorded in the previous week; the highest death-rates from this disease during the week were 1·9 in Stockton-on-Tees, 2·5 in Stockport, 2·8 in Burton-on-Trent, and 6·6 in Merthyr Tydfil. The 37 deaths referred to diphtheria were equal to the number returned in the previous week; they included 5 in Nottingham, 3 in Liverpool, and 2 both in Manchester and in Salford. The deaths attributed to diarrhœa, which had been 44 and 49 in the two preceding weeks, declined to 32 last week. The 25 fatal cases of scarlet fever showed but slight variation compared with recent weekly numbers, and included 8 deaths in London and its suburban districts. The 11 deaths referred to enteric fever included 2 in Manchester. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 31 preceding weeks from 2810 to 1476, were again 1476 last week; 190 new cases of this disease were admitted to these hospitals during last week, against 179 and 177 in the two preceding weeks. Of the 1063 deaths registered in London during the week under notice 195 were referred to pneumonia and other diseases of the respiratory system, showing a substantial decline from the numbers returned in recent weeks; these 195 deaths were 34 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 24, or 0·6 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Sheffield, Bristol, West Ham, Newcastle-on-Tyne, and in 56 other smaller towns; the 24 uncertified causes of death in the 77 towns last week included 4 in Manchester and 3 both in Liverpool and in Preston.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 1047 births and 555 deaths were registered during the week ending May 14th. The annual rate of mortality in these towns, which had been equal to 17·4 and 15·6 per 1000 in the two preceding weeks, declined to 15·3 in the week under notice. During the first six weeks of the current quarter the death-rate in these towns averaged 16·9 per 1000, and exceeded by 3·1 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the week in these eight Scotch towns ranged from 11·5 and 12·0 in Aberdeen and in Leith, to 21·3 in Greenock and 25·4 in Dundee. The 555 deaths from all causes in the eight towns during the week showed a decrease of 9 from the number in the previous week, and included 80 which were referred to the principal epidemic diseases, against 76 and 87 in the two preceding weeks. These 80 deaths were equal to an annual rate of 2·2 per 1000; the mean death-rate from the same diseases in the 77 English towns did not exceed 1·3 per 1000. These 80 deaths in the Scotch towns in the week under notice included 48 from measles, 15 from diarrhœa, 8 from whooping-cough, 4 from scarlet fever, 4 from diphtheria, and 1 from "fever," but not one from small-pox. The fatal cases of measles which had been 59, 44, and 52 in the three preceding weeks, declined in the week under notice to 48, and included 31 in Dundee, 9 in Glasgow, 4 in Greenock, and 3 in Edinburgh. The deaths from diarrhœa, which had been 16, 16, and 12 in the three preceding weeks, rose in the week under notice to 15; 7 were returned in Glasgow and 2 each in Edinburgh, in Dundee, and in Paisley. The fatal cases of whooping-cough, which had increased from 6 to 11 in the five preceding weeks, declined to 8 last week, of which 6 occurred in Glasgow and 2 in Dundee. Three of the 4 deaths from scarlet fever and 2 of the 4 fatal cases of diphtheria occurred in Glasgow. Only 1 death during the week was referred to "fever"; it was also recorded in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had been 93 and 77 in the two preceding weeks, rose in the week to 99, and were 7 above the number in the corresponding week of last year. The causes of 23, or 4·1 per cent., of the deaths in the eight towns in the week under notice were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death did not exceed 1·1 per cent.

In eight of the principal Scotch towns 872 births and 562 deaths were registered during the week ending May 21st. The annual rate of mortality in these towns, which had been equal to 15·6 and 15·3 per 1000 in the two preceding weeks, rose to 15·5 in the week under notice. During the first seven weeks of the current quarter the death-rate in these towns averaged 16·7 per 1000, and exceeded by 3·0 the mean rate during the same period in the 77 large English towns. The annual death-rates last week in these eight Scotch towns ranged from 11·2 and 12·6 in Aberdeen and in Leith, to 15·9 in Edinburgh and 20·8 in Dundee. The 562 deaths from all causes in the eight towns during last week showed an increase of 7 over the number in the previous week, and included 63 which were referred to the principal epidemic diseases, against 87 and 80 in the two preceding weeks. These 63 deaths were equal to an annual rate of 1·7 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·2 per 1000. These 63 deaths in the Scotch towns last week included 41 from

measles, 12 from diarrhœa, 7 from whooping-cough, 1 from scarlet fever, 1 from diphtheria, and 1 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 52 and 48 in the two preceding weeks, declined last week to 41, and included 23 in Dundee, 10 in Glasgow, 4 in Greenock, and 3 in Paisley. The 12 deaths attributed to diarrhœa showed a decline from the numbers in recent weeks; 6 were returned in Glasgow and 3 in Edinburgh. The single deaths from scarlet fever, from diphtheria, and from "fever" were recorded in Glasgow. The 7 deaths from whooping-cough showed a decline from the numbers in recent weeks, and included 5 deaths returned in Glasgow and 2 in Dundee. The deaths in the eight towns referred to diseases of the respiratory system, which had been 77 and 99 in the two preceding weeks, were 98 last week, and were 11 below the number in the corresponding week of last year. The causes of 18, or 3·2 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

HEALTH OF IRISH TOWNS.

In Dublin 241 births and 170 deaths were registered during the week ending May 14th. The annual rate of mortality in this city, which had declined from 24·3 to 16·7 per 1000 during the three preceding weeks, rose again to 22·0 in the week under notice. During the first six weeks of the current quarter the annual death-rate in the city averaged 21·9 per 1000, whereas the mean rate in London during the same period did not exceed 13·7 per 1000. The 170 deaths in Dublin included 6 which were referred to the principal epidemic diseases, against 9, 7, and 3 in the three preceding weeks. The annual rate from these epidemic diseases did not exceed 0·8 per 1000; the rate from the same diseases in London in the week under notice was equal to 1·3. The 6 deaths from these epidemic diseases in Dublin in the week under notice included 3 from enteric fever, and 1 each from scarlet fever, whooping-cough, and diarrhœa. Of the 170 deaths from all causes 78, or nearly 46 per cent., were recorded in public institutions. The causes of 2, or 1·2 per cent., of the deaths were not certified. In Belfast 214 births and 170 deaths were registered during the week ending May 14th. The annual death-rate in this city, which had been equal to 23·1 and 22·3 in the two preceding weeks, rose to 22·7 per 1000 in the week under notice. Of the 170 deaths from all causes, 31 resulted from the principal epidemic diseases, equal to an annual rate of 4·1 per 1000, and included 23 from measles, 6 from whooping-cough, 1 from diphtheria, and 1 from enteric fever. The 170 deaths included 29 of infants under 1 year of age and 31 of persons aged upwards of 60 years, 4 deaths resulted from violence, and 41, or 24 per cent., of the deaths occurred in public institutions. The causes of 2, or 1·2 per cent., of the total deaths were uncertified.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 501 births and 431 deaths were registered during the week ending May 21st. The mean annual rate of mortality in these towns, which had been equal to 22·0, 20·1, and 21·3 per 1000 in the three preceding weeks, declined to 19·5 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these Irish towns averaged 21·7 per 1000, whereas the mean rate during the same period did not exceed 13·7 in the 77 large English towns and 16·7 in the eight principal Scotch towns. The annual death-rate during last week was equal to 15·9 in Dublin, 23·6 in Belfast, 22·6 in Cork, 15·6 in Londonderry, 10·9 in Limerick, and 17·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 23·8 per 1000. The 431 deaths from all causes in the 22 town districts last week showed a decline of 40 from the number recorded in the previous week, and included 59 which were referred to the principal epidemic diseases, against 43 and 41 in the two preceding weeks; these deaths were equal to an annual rate of 2·7 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·2 per 1000, while in the eight Scotch towns it was equal to 1·7. The 59 deaths from these diseases in the Irish towns last week included 45 from measles, 6 from whooping-cough, 4 from diarrhœa, 3 from scarlet fever, and 1 from enteric fever, but not one either from small-pox or diphtheria. The fatal cases of measles, which had been 20 and 24 in the two preceding weeks, further increased to 45 last week, of which no fewer than 44 occurred in Belfast. The 6 deaths from whooping-cough showed a decline from the numbers in recent weeks, and included 4 in Belfast. The 4 deaths from diarrhœa occurred in Dublin. The 3 deaths referred to scarlet fever included 1 each in Dublin, Cork, and Dundalk. The fatal case of enteric fever was recorded in Cork. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 93 and 120 in the two preceding weeks, declined to 84 last week. The causes of 12, or 2·8 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent., and in the eight principal Scotch towns it was equal to 3·2 per cent.

VITAL STATISTICS OF LONDON DURING APRIL, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·2 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 4·5, 4·6, and 4·1 per 1000 respectively. The lowest rates last month were recorded in the Cities of London and Westminster, and the Boroughs of Hampstead, Hackney, and Holborn; and the highest rates in St. Marylebone, St. Pancras, Finsbury, Deptford, Lewisham, and Woolwich. The prevalence of scarlet fever showed a slight increase over that recorded in the previous month; this disease was proportionally most prevalent last month in Chelsea, St. Pancras, Deptford, Greenwich, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 1489 scarlet fever patients at the end of last month, against 1962, 1740, and 2392 at the end of the three preceding months; the weekly admissions averaged 183, against 198, 204, and 180 in the three preceding months. Diphtheria was rather more prevalent in April than in March; among the several metropolitan boroughs this disease showed the greatest proportional prevalence in Stoke Newington, Finsbury, Bethnal Green, Stepney, Bermondsey, Lewisham, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 883, 908, and 852 at the end of the three preceding months, had further declined to 794 at the end of last month; the weekly admissions averaged 75, against 96, 93, and 82 in the three preceding months. The prevalence of enteric fever showed a very marked decline from that recorded in the two preceding months; this disease was proportionally most prevalent in the City of Westminster, St. Marylebone, Finsbury, Bermondsey, Battersea, and Deptford. The Metropolitan Asylums Hospitals contained 66 enteric fever patients at the end of last month, against 62, 75, and 84 at the end of the three preceding months; the weekly admissions averaged 6, against 12 in each of the two preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Hackney, Finsbury, Shoreditch, Stepney, Southwark, Bermondsey, Deptford, and Greenwich. The 25 cases of puerperal fever included 3 in Stepney, and 2 each in Fulham, Islington, Hackney, Poplar, Southwark, and Woolwich. The 12 cases notified as cerebro-spinal meningitis included 2 in St. Pancras and 2 in Battersea.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the four weeks ending April 30th, the deaths of 4987 London residents were registered, equal to a corrected annual death-rate of 14·0 per 1000; in the three preceding months the rates were 14·8, 16·6, and 13·9 per 1000. The lowest death-rates last month were 9·7 in Hampstead, 10·3 in Woolwich, 10·4 in Stoke Newington and in Lewisham, 11·3 in Wandsworth, and 11·6 in Hackney; the highest

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING APRIL, 1910.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON...	4,872,702	—	814	390	—	49	—	25	265	12	1555	4·2	—	139	15	24	164	—	14	—	37	393	1·1	4987	14·0
West Districts.																								
Paddington	153,004	—	28	8	—	1	—	—	5	—	42	3·6	—	10	—	—	3	—	—	—	1	14	1·2	163	14·8
Kensington	184,635	—	26	9	—	2	—	—	8	—	45	3·2	—	1	—	2	6	—	—	—	—	9	0·6	165	12·5
Hammersmith	127,413	—	23	13	—	—	—	1	1	1	39	4·0	—	2	—	—	3	—	—	—	1	6	0·6	130	13·9
Fulham	181,282	—	25	14	—	—	—	2	8	1	50	3·6	—	10	—	—	6	—	—	—	—	16	1·2	179	13·5
Chelsea	75,457	—	21	5	—	—	—	—	1	—	27	4·7	—	—	—	—	1	—	—	—	1	2	0·3	69	12·3
City of Westminster	167,233	—	15	10	—	9	—	—	4	—	38	3·0	—	1	1	—	6	—	2	—	—	10	0·8	177	15·5
North Districts.																								
St. Marylebone	125,195	—	24	13	—	2	—	1	14	—	54	5·6	—	5	1	2	6	—	—	—	1	15	1·6	146	16·2
Hampstead	95,729	—	14	4	—	—	—	1	3	—	22	3·0	—	—	—	—	—	—	—	—	—	—	—	63	9·7
St. Pancras	237,792	—	65	23	—	3	—	1	12	2	106	5·8	—	8	2	3	21	—	—	—	4	38	2·1	267	15·3
Islington	353,356	—	59	27	—	4	—	2	19	—	111	4·1	—	—	—	4	18	—	2	—	1	25	0·9	340	13·0
Stoke Newington...	54,838	—	3	8	—	—	—	—	3	—	14	3·3	—	1	—	—	—	—	—	—	1	2	0·5	42	10·4
Hackney	239,979	—	19	12	—	1	—	2	19	1	54	2·9	—	6	1	—	7	—	1	—	1	16	0·9	205	11·6
Central Districts.																								
Holborn	53,142	—	6	2	—	—	—	—	3	—	11	2·7	—	—	—	1	2	—	—	—	—	3	0·7	74	19·6
Finsbury	94,578	—	23	13	—	4	—	—	18	—	58	8·0	—	5	—	—	6	—	1	—	3	15	2·1	147	21·0
City of London	17,132	—	3	—	—	1	—	—	—	—	4	3·0	—	—	—	—	—	—	—	—	1	1	0·8	26	21·8
East Districts.																								
Shoreditch	114,387	—	26	5	—	—	—	1	8	—	40	4·6	—	8	1	1	6	—	—	—	1	17	1·9	152	18·2
Bethnal Green	131,579	—	17	16	—	—	—	1	3	1	38	3·8	—	4	—	—	1	—	—	—	—	5	0·5	141	14·1
Stepney	314,379	—	36	37	—	4	—	3	25	1	106	4·4	—	7	—	3	7	—	1	—	4	22	0·9	348	15·0
Poplar	172,432	—	26	15	—	1	—	2	12	—	56	4·2	—	5	—	3	12	—	1	—	1	22	1·7	220	17·1
South Districts.																								
Southwark	211,832	—	29	14	—	2	—	2	16	1	64	3·9	—	12	3	—	8	—	1	—	1	25	1·5	271	17·5
Bermondsey	127,238	—	11	17	—	2	—	—	9	1	40	4·1	—	4	—	1	6	—	—	—	2	13	1·3	197	20·7
Lambeth	327,074	—	55	23	—	1	—	1	7	—	87	3·5	—	7	2	—	8	—	2	—	2	21	0·8	323	13·3
Battersea...	188,222	—	25	12	—	3	—	1	9	2	52	3·6	—	4	1	1	3	—	1	—	1	11	0·8	165	12·2
Wandsworth	305,838	—	48	14	—	3	—	1	13	—	79	3·4	—	3	—	—	7	—	1	—	2	13	0·6	252	11·3
Camberwell	286,068	—	41	20	—	2	—	—	18	—	81	3·7	—	5	1	2	11	—	—	—	4	23	1·0	262	12·3
Deptford	119,642	—	30	12	—	3	—	—	10	—	55	6·0	—	14	—	—	1	—	—	—	1	16	1·7	131	15·0
Greenwich	112,935	—	29	5	—	—	—	—	9	—	43	5·0	—	13	—	—	4	—	1	—	—	18	2·1	105	12·4
Lewisham	164,899	—	53	19	—	—	—	1	3	1	77	6·1	—	3	1	1	1	—	—	—	3	9	0·7	127	10·4
Woolwich...	135,422	—	34	20	—	1	—	2	5	—	62	6·0	—	1	1	—	4	—	—	—	—	6	0·6	100	10·3
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

rates were 17·1 in Poplar, 17·5 in Southwark, 18·2 in Shoreditch, 19·6 in Holborn, 20·7 in Bermondsey, 21·0 in Finsbury, and 21·8 in the City of London. The 4987 deaths from all causes included 393 which were referred to the principal epidemic diseases; of these, 139 resulted from measles, 15 from scarlet fever, 24 from diphtheria, 164 from whooping-cough, 14 from enteric fever, and 37 from diarrhœa. No death from any of these epidemic diseases was recorded last month in Hampstead; among the other boroughs they caused the lowest death-rates in Kensington, Hammersmith, Chelsea, Stoke Newington, Bethnal Green, Wandsworth, and Woolwich; and the highest rates in St. Marylebone, St. Pancras, Finsbury, Shoreditch, Poplar, Southwark, Deptford, and Greenwich. The 139 deaths from measles were 107 fewer than the corrected average number in the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded last month in Paddington, Fulham, Finsbury, Shoreditch, Southwark, Deptford, and Greenwich. The 15 fatal cases of scarlet fever showed a decline of 27 from the corrected average number; these 15 deaths included 3 in Southwark, and 2 each in St. Pancras and Lambeth. The 24 deaths from diphtheria were less than half the corrected average number in the corresponding period of the five preceding years; of these deaths 4 belonged to Islington, 3 to St. Pancras, 3 to Stepney, 3 to Poplar, 2 to Kensington, 2 to St. Marylebone, and 2 to Camberwell. The 164 fatal cases of whooping-cough were 20 fewer than the corrected average number; this disease was proportionally most fatal in St. Marylebone, St. Pancras, Islington, Finsbury, Shoreditch, Poplar, and Bermondsey. The 14 deaths referred to enteric fever were equal to the average number in the corresponding period of the five preceding years; these 14 deaths included 2 in Westminster, 2 in Islington, and 2 in Lambeth. The 37 fatal cases of diarrhœa were 14 below the corrected average number; the greatest proportional mortality from this disease was recorded in St. Pancras, Finsbury, Bermondsey, Camberwell, and Lewisham. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 32·7 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Staff-Surgeons have been advanced to the rank of Fleet-Surgeon in His Majesty's Fleet:—Thomas Tendron Jeans, John Hunter Pead, George Robert MacMahon, Robert Thomas Gilmour, Hilary Charles Arathoon, Thomas Williams Philip, Robert Spence Bernard, Lancelot Kilroy, James Mowat, Shirley Hall Birt, Montague Henry Knapp, Robert Dundonald Jameson, Hugh Somerville Burniston (dated May 16th, 1910).

Surgeons: W. H. King, F. C. Alton, H. E. R. Stephens, D. A. Mitchell, J. S. Ward, C. F. O. Sankey, D Horgan, R. N. W. W. Biddulph, E. McEwen, D. Loughlin, M. C. Mason, M. F. Caldwell, A. H. Joy, A. S. Paterson, and E L. Markham have been entered in the Royal Navy, with seniority of May 6th, and appointed to the *Victory*, additional, for a course of instruction at the Royal Naval Hospital, Haslar.

The following appointments are notified:—Fleet-Surgeons: E. J. Finch to the *Dominion*, temporarily, on recommissioning; J. K. Robinson to the *Cæsar*, on recommissioning; C. Bradley to the *Eagle*; and Hilary C. Arathoon to the *Hermione*, on recommissioning. Staff-Surgeons: Charles H. J. Robinson to the *Roxburgh*; Fairman R Mann to the *Blake*; James C. Bringan to Haslar Hospital; Paul H. M. Star to the *Gibraltar*, for voyage home; John Martin to the *Gibraltar* and to the *Fox*, on recommissioning; Oswald Rees to the *Gibraltar* for voyage home. Surgeons: John M. Gordon and Leonard Warren to the *Victory*, additional, for disposal; Alfred B. Cox, to the *Vivid*, for Royal Naval Barracks; Harold H. Babington, to the *Gibraltar*, and to the *Fox*, on recommissioning; George A. S. Hamilton, to the *Gibraltar*, for voyage home; Arthur R. Davidson, to the *Gibraltar*, and to the *Proserpine*, on recommissioning; James A. Thompson, to the *Pembroke*, additional, for disposal; George E. Hamilton, to Yarmouth Hospital; Charles J. Aveling, to the *Argonaut*, and for a division of special service vessels; Walter P. Yetts and James L Barford to the *Pembroke*, additional, for disposal; T. E. Glunt, to the *Espiegle*; J. Hadwen, to the *Pembroke*, additional, for disposal; and W. E. Lloyd, to the *Dominion*, on recommissioning.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Menus W. O'Keeffe, from the Royal Army Medical Corps, to be Colonel, vice Colonel J. G. MacNeece, promoted (dated April 23rd, 1910.)

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenants are confirmed in that rank:—Theodore W. Stallybrass and Victor P. Hutchinson.

Colonel F. B. Maclean, Principal Medical Officer of the Seventh (Meerut) Division, has been granted five months' general leave. Brevet-Colonel R. H. Firth has been appointed Sanitary Officer on the Army Headquarters Staff, Simla, India, vice Lieutenant-Colonel A. R. Aldridge, tour expired. Lieutenant-Colonel D. Hennessy has arrived home from India on leave. Lieutenant-Colonel D. M. O'Callaghan has been appointed to the Charge of the Surgical Division of the Cambridge Hospital at Aldershot. Major E. B. Steel has been transferred from Jhansi to Neemuch. Major G. T. K. Maurice, from Muttra, has been posted for duty to the Southern Command. Major L. F. Smith, from Woolwich, has, on arrival in India, been appointed to the Station Hospital at Nowshera. Major G. B. Riddick, from Calcutta, has joined for duty at Maymyo, Burma. Major W. A. Ward has been transferred from the London District to the Southern Command and posted to Bulford Camp, Salisbury Plain. Major T. McDermott, on arrival from India, has been posted to the Eastern Command and appointed Specialist in Ophthalmology at Woolwich. Captain H. O. M. Beadnell has been granted six months' leave home from India. Captain R. R. Lewis, from Secunderabad, has been posted to Aldershot. Captain E. G. Ford has been transferred from Rawalpindi to Dehra Dun. Captain J. M. Cuthbert has arrived home on leave from the West Coast of Africa. Captain F. S. Walker, from Crownhill, has joined at Cahir for duty. Captain D. P. Johnstone, on return from a tour of service in Burma, has been posted to the Western Command. Captain K. A. C. Doig, from Bareilly, has been appointed to the Station Hospital at Shahjehanpur, United Provinces. Lieutenant A. D. Stirling has been transferred from Ashton to the Scottish Command and posted to Edinburgh for duty. Lieutenant A E. J. Frazer has arrived home from Egypt on leave. Lieutenant M. P. Leahy has been transferred from Poona to Kirkee. Lieutenant D. S. Buist, from Kingston-on-Thames, has been appointed for duty in the London District.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions among officers of the Indian Medical Service:—Majors to be Lieutenant-Colonels: Allan James Macnab, James Jackson, Henry Smith, Charles Neil Campbell Wimberley, Ernest Wickham Hore, Ashton Street, John Bland Jameson, William Dunbar Sutherland, Percy Carr-White, Edmund Hasell Wright, William Molesworth, Clarence Forbes Fearnside, Charles Arthur Johnson, and Gerard Godfray Giffard (dated March 31st, 1910). Lieutenant to be Captain: Norman Skinner Simpson (dated Sept. 1st, 1909).

The King has also approved of the retirement of the undermentioned officers: Lieutenant-Colonel Edulji Palanji Frenchman (dated April 1st, 1910); Lieutenant-Colonel Sarkies Carrapiet Sarkies (dated May 6th, 1910); Lieu-Colonel Winthropp Benjamin Browning, C.I E., Lieutenant-Colonel Dhanjibhai Barjorji Spencer (dated May 17th, 1910).

Lieutenant-Colonel A. C. Reeves has been reverted from civil to military employment. Lieutenant-Colonel J. M. Cadell, civil surgeon at Ghazipur, United Provinces, has been granted six months' leave. Lieutenant-Colonel H. Hendley, Bombay, has had his leave extended by two and a half months on medical certificate. Captain H. H. Thorburn has been granted leave for one year. Captain J. Connor, resident surgeon, Medical College Hospital, Calcutta, has been appointed to officiate as Civil Surgeon at Gaya, vice Lieutenant-Colonel Sunder. Captain H. M. Mackenzie, special health officer at Simla, has been appointed to officiate as Professor of Physiology at the Calcutta Medical College. The services of Captain

J. F. James have been placed temporarily at the disposal of the Government of Eastern Bengal and Assam. Captain R. A. Chambers has been appointed Officiating Superintendent of the Lahore District Jails, vice Captain N. H. Hume transferred. Captain D. H. F. Cowin has been posted as Officiating Civil Surgeon, Ferozopore, relieving Lieutenant-Colonel J. R. Adie, who has proceeded to Amritzar on deputation in connexion with the prevention of malarial fevers. Captain H. W. Pierpoint has been posted for duty to the Central Provinces under the Home Department. Captain W. T. Anderson has been granted two years' leave. Captain F. W. Cragg has arrived home on leave.

TERRITORIAL FORCE.

Infantry.

5th Battalion, The King's Own (Royal Lancaster Regiment): Arthur Henry Falkner (late Lieutenant, Royal Army Medical Corps (Territorial Force)) to be Lieutenant (dated March 24th, 1910). 4th Battalion, Alexandra, Princess of Wales's Own (Yorkshire Regiment): Surgeon-Lieutenant Clarence B. Whitehead to be Surgeon-Captain (dated Sept. 24th, 1909).

Royal Army Medical Corps.

1st Wessex Field Ambulance: Major Ransom Pickard to be Lieutenant-Colonel (dated March 29th, 1910).

For attachment to Units other than Medical Units.—Andrew George Tottenham Hanks to be Lieutenant (dated April 6th, 1910). Rupert Waterhouse, to be Lieutenant (dated April 15th, 1910).

DEATHS IN THE SERVICES.

Deputy Inspector-General Astley Cooper, R.N. (retired), at his residence, Chatsworth, Mannamead, Plymouth, on May 12th. The deceased officer entered the Royal Navy as a surgeon in 1857, became staff-surgeon in 1858, and was promoted fleet-surgeon in 1878. He was with the Royal Marine Brigade during the expedition of 1857–59, which included the blockade of the Canton river and the capture of the city, and was also in the expedition to the north of China in 1860. As principal medical officer he was at Shanghai during the repulse of the attacks on that city by the rebel army (China medal and clasp). He landed from the *Perseus* in 1869 and was at the capture of three walled villages near Swatow, China. During the Egyptian war of 1882 he was fleet-surgeon with Vice-Admiral Dowell on the *Minotaur* (Khedive's bronze star and the Egyptian medal). He retired from the service in 1889 with the rank of Deputy Inspector-General of Hospitals and Fleets.

Lieutenant-Colonel John Albert Anderson, A.M.S. (retired), on May 9th, at Paramé, France, aged 66 years. He joined the army as assistant surgeon in 1867; was promoted to surgeon in 1873; to surgeon-major in 1879, and to lieutenant-colonel in 1887, in which year he retired. He served in the Zulu campaign, 1879–80, and was present at the engagement at Ulundi (mentioned in despatches, medal with clasp).

THE LATE KING EDWARD VII. AND MIDDLESEX HOSPITAL.

At the Middlesex Hospital during the period intervening between the death and funeral of His late Majesty the flag flying half-mast high was lowered each night at sunset on the sound of "Retreat" by members of D Section, Medical Unit, University of London Officers' Training Corps, composed of students of the Middlesex Hospital Medical School. On the day of the funeral the section was paraded and attended a memorial service in the chapel attached to the hospital.

THE BRITISH RED CROSS SOCIETY.

On May 23rd a meeting of the committee of the City of London branch of the British Red Cross Society was held at the Mansion House under the Presidency of the Lady Mayoress. Various subcommittees were formed, and it was announced that the Prudential Assurance Company and Messrs. James Truscott and Son, Limited, would invite their employees to attend meetings convened for the purpose of securing their active interest in the movement.

The Duchess of Montrose presided at a meeting of the Stirlingshire Committee of the Scottish branch of the Red Cross Society held in the County Buildings, Stirling, on May 17th, when her Grace addressed those present on the objects of the society. Lieutenant-Colonel F. J. Greig, R.A.M.C. (retired), also addressed the meeting.

QUEEN ALEXANDRA'S IMPERIAL MILITARY NURSING SERVICE.

The War Office has issued the regulations for admission into the Queen Alexandra's Imperial Military Nursing Service. Candidates for the position of nurses must be between 25 and 35 years of age, single or widowed, and possess a certificate of not less than three years' training in medical and surgical nursing in a civil hospital having not less than 100 beds. They must be of British parentage or naturalised British subjects. The pay is as follows:—Staff-nurse, £40; Sister, £50; Matron, £75; Principal Matron, £175; and Matron-in-Chief, £305. All staff-nurses will be appointed provisionally for six months.

THE NAVAL AND INDIAN MEDICAL SERVICE DINNERS.

The annual dinners of these Services have been postponed this year in consequence of the lamented death of King Edward VII.

Correspondence.

"Audi alteram partem."

A CASE OF BLACKWATER FEVER.

To the Editor of THE LANCET.

SIR,—Without attempting to discuss in detail the very important points raised by Major D. G. Marshall in his article on a case of blackwater fever in THE LANCET of May 14th, p. 1333, I should like to offer a few comments upon some of the special features of this case and to point what I consider the moral which should be drawn from it. The case quoted is unfortunately no isolated one, and it is because I believe that these attacks are in the main preventable that I venture to address you.

Let me recapitulate the main facts of the case. The patient in question goes out to West Africa in September, 1907. He takes quinine irregularly, and so at the end of six months has several slight attacks of malaria. He then takes quinine, five grains daily, and he has no more malaria. He returns to England in September, 1908, and in an evil moment gives up taking quinine at the very time when it was most urgent for him to take it—viz., when coming home during the treacherous British autumn. In Africa he was infected by the "malignant parasite" of malaria, the usual precursor of blackwater fever; this had been kept in check by quinine, but when he leaves off the quinine parasites again appear in his blood and he has a warning of malaria. Again he takes quinine for a month and then leaves it off again, and at the end of December he is exposed to the risks of winter in Edinburgh. On Jan. 6th he feels fever coming on, and is said to have taken "a large dose of sulphate of quinine," though how much he took or at what hour is not stated. That evening, however, he had two rigors and there was hæmoglobinuria. Apparently the urine never assumed the characteristic "porter" colour, and the yellow colouration of the skin which usually commences very soon after the onset of hæmoglobinuria does not seem to have been present until the fourth day, so that from several points of view the case was not quite an ordinary one. Some fever appears to have hung about the patient for some time until he took quinine again, when all fever left him.

Now what is the moral of this case? 1. That the only way to keep malaria in check by those who are liable to infection, or who show by the occurrence of attacks of malaria that they have been infected, is to take quinine. 2. That quinine must be taken regularly or it is useless, perhaps worse than useless, for it is the erratic taking of quinine which is most likely to produce unpleasant results. 3. That 5 grains of quinine a day is probably the best system, as any less regular system is not very likely to be rigidly carried out. 4. That the most important time to take quinine is on return to England, and for at least three months after, especially if the weather is cold, and for an even longer period if fever develops in England. 5. That whilst it probably is sound practice not to give quinine whilst the blackwater symptoms are present, yet quinine should be commenced in small gradually increasing daily doses immediately after. It may be added that it is the opinion of Professor Koch that if anyone will do this he will not suffer from blackwater fever or malaria again. 6. It

should therefore be clearly understood that in a person who has been infected by the malignant malarial parasite there is one, and only one, prophylactic, and that is quinine regularly and persistently taken. If only this were acted upon we should hear very little of blackwater fever.

As regards the question of return to the tropics after blackwater fever, this depends entirely upon the severity rather than the frequency of the attacks, and each case must be decided on its merits. It is certainly not the case that a man is immune after three attacks, and it is almost equally a mistake to say that "the chances of recovery from a second or third attack are ..... slight." I have had three attacks, and I know two medical men who have had a great many more.

I am, Sir, yours faithfully,

CHARLES F. HARFORD.

Livingstone College, Leyton, E., May 14th, 1910.

THE OPERATION FOR CLEFT PALATE.

To the Editor of THE LANCET.

SIR,—Several years have now elapsed since the introduction of what is known as the early operation for cleft palate, and it has been practised to such an extent that it has now become comparatively rare—amongst London patients at any rate—to find a child with this deformity at the age of a year or so who has not had an attempt, at any rate, made to remedy it. The success of such an operation can only be judged of after the lapse of a few years, and it would be interesting to learn how the ultimate results of this operation compare with those of the older methods and performed at a rather later period of the child's life.

I am led to make these remarks by having recently had under my care two children who had had the operation performed in their infancy; they came under my care for conditions quite unconnected with their deformity, one for empyema, the other for necrosis of the tibia. In both of them, to my mind, the result, as far as the palate was concerned, left much to be desired. It is true that in both of them the cleft had been closed over, but the palate that had been so fashioned was a most inefficient one, the soft palate was very short in an antero-posterior direction and terminated posteriorly in an almost straight transverse line, the movements of the soft palate were almost absent, and what little there was was irregular and one-sided, a result which, I think, must be in great measure due to the turning across of a flap, a proceeding which is almost necessary when operating on a wide cleft in an infant. As far as speech was concerned the result was very poor, and in one case, that of a child aged about 9 years, it was little, if anything, better than in a case where no operation had ever been performed. It may be, of course, that in these two cases the results had been exceptionally poor, but from the fact that the clefts in the palates were closed they were doubtless regarded as "cures" at the time of operation. These results compare very unfavourably with what can be obtained by median suture at a later period, and unless better results than those I have seen can be obtained I cannot help thinking it is a pity that so many of these cases should be operated on as infants and (in my opinion) spoiled for a more successful later operation. In cases where both the hard and soft palates are cleft I have always been an advocate for delaying the operation till the age of 18 months or 2 years, when it can be done by Fergusson's method, and this evidence of the results of the early operation has strengthened my conviction that the older plan is to the best interests of the patient's future. It would be interesting to know the experience of others in this matter.

I am, Sir, yours faithfully,

Queen Anne-street, W., May 21st, 1910. THOS. H. KELLOCK.

THE EXPIRATORY NATURE OF STRIDOR IN BRONCHIAL ASTHMA.

To the Editor of THE LANCET.

SIR,—In Dr. Brian Melland's extremely illuminating article on Bronchial Asthma and its Treatment by means of Hypodermic Injections of Adrenalin the writer expresses inability to account for the expiratory nature of the stridor in this affection. In lecturing upon laryngeal as distinguished from other forms of stridor, it has been my custom in describing the inspiratory rhythm of the noise in laryngeal obstruction to compare it with the bronchial stridor which is characteristically expiratory. I have ventured to offer the following explanation—namely, that during inspiration expansion of the chest walls is accompanied by a dilatation (more or less marked according to the nature of the tissue) of all the hollow structures in the cavity, including the bronchial tubes, so far as the rigidity of their structures will permit; in expiration, on the other hand, the contraction of the chest causes a simultaneous compression of the contained organs. Thus during the latter phase the bronchial tubes, already narrowed, become still more narrow than before, and in the former one the asthmatic contraction is to a slight extent neutralised by the expiratory dilatation. If this does not express the whole of the truth I am quite convinced that it expresses some of it, and I think it will help to fill up the lacuna in Dr. Brian Melland's description.

I am, Sir, yours faithfully,

London, W., May 23rd, 1910. DUNDAS GRANT.

ASSOCIATION OF MEDICAL DIPLOMATES. OF SCOTLAND.

To the Editor of THE LANCET.

SIR,—May I call the attention of Licentiates of the Royal Colleges of Physicians and of Surgeons of Edinburgh to the fact that they have been excluded from the addresses of sympathy recently sent by the Councils and Fellows of those corporations to His Majesty the King and to the Queen-Mother. With the wording of those addresses all must agree: with simple eloquence they express sympathy, allegiance, loyalty, and congratulations. But why at this supreme moment of sorrow are the Licentiates, who compose the bulk of the Colleges, denied the opportunity of sharing in a graceful tribute to their beloved Sovereign and his Queen-Mother? Could any more striking example of the absolute indifference of council-governed colleges towards their Licentiates and Members be imagined than this?

As President of the Association of Medical Diplomates of Scotland I beg to say that if a sufficient number of Scotch Licentiates and Members will send me their authorisation I will see that an address worthy of the Licentiates and Members of our ancient Colleges is prepared and forwarded to the proper quarter. All that will be required is to send me a post-card stating that the Licentiate writing wishes to add his or her name to the address of sympathy to be sent to the King and the Queen-Mother, and to add name and qualifications.—I am, Sir, yours faithfully,

D. WALSH, M.D. Edin.

48, Welbeck-street, London, W., May 24th, 1910.

THE LATE DR. E. CRESSWELL BABER.

To the Editor of THE LANCET.

SIR,—I should like, in addition to your obituary notice of Dr. Baber, to say a word or two of appreciation of his many good qualities and of his many kindnesses to myself.

I first met him when I became desirous of joining the Royal Ear Hospital staff in 1895, and when, in 1897, I became his house surgeon at that institution I commenced a pleasant association with him that only death has cut short. Dr. Baber had, among his many good qualities, that of attracting those in intimate association with him by his never-failing courtesy and kindly nature. He was, perhaps, rather a shy man, but once one got beneath his (apparent more than real) reserve one could not but appreciate his great kindness of heart and ever-readiness to help another. Of his capabilities as an organiser and his skill as an otologist and laryngologist I need not speak, the success of the Otological Congress in 1899 and his work in hospital and private practice were sufficient evidences. What I wish especially to emphasise is his personal charm, and I shall always cherish his memory as one of those who make life easier to those around them.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY, F.R.C.S. Eng.,

May 21st, 1910. Senior Surgeon to the Royal Ear Hospital.

THE MIDWIVES BILL AND POOR-LAW RELIEF.

To the Editor of THE LANCET.

SIR,—Dr. Major Greenwood's letter of May 7th on the Midwives Bill and Poor-law Relief in my mind opens the ground for another big discussion. In a few years' time will medicine as a profession be worth following? I am in practice in a working-class town, and what with midwives and district nurses midwifery is nothing to what it was, and as time goes on I am very much afraid that in a town like this we shall only be called in to emergency cases, and may or may not get our fees; at present for emergency work it is generally the latter.

There is another very serious question, too: our medical officer of health was appointed as a whole-time official, to do the medical officer of health's work, inspection of school children, and look after the isolation hospital, and was not to practise. Now what do we find? We find that the inspection of the school children has gone a step further, and that the children are being treated by the medical officer of health at his office for ringworm, otorrhœa, diseases and troubles of the eyes, and other minor ailments that one finds with the school children, and the parents of the majority of the cases treated are quite in a position to pay the fees asked in a locality such as this. We then go on a step further and find that the patients in isolation hospital are being afforded minor operations that they can and would willingly undergo at home, and so the poor general practitioner is once more suffering and placed at a disadvantage. It seems very forcible to me that these latest moves, supposed to be in the interests of the children, are tending only more and more to pauperise the working classes. I have used the word pauperise because there is no other word that fits the case so well. And the medical man is asked to pay income-tax, rates and taxes, &c., to help to take his own living away from him. I enclose my card, but for obvious reasons desire my name and address to be withheld.—I am, Sir, yours faithfully,

ONE WHO BELIEVES IN PARENTAL RESPONSIBILITY.

May 17th, 1910.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bonn:* Professor Verworn of Göttingen has been offered the Chair of Physiology vacated by the death of Professor E. Pflueger.—*Cincinnati (Miami Medical College):* Dr. Henry Martin Fischer has been appointed Professor of Physiology.—*Halle:* Dr. Karl Grouven of Bonn has been appointed Extraordinary Professor of Dermatology; Dr. Hermann Hildebrandt, *privat-docent* of Pharmacology, has been granted the title of Professor.—*Heidelberg:* Dr. Th. Lebar, Professor of Ophthalmology, who has now completed his seventieth year, is about to retire; Dr. K. Laubenheimer, formerly of Giessen, has been recognised as *privat-docent* of Hygiene, having followed his chief, Professor H. Kossel.—*Kahrkoff:* Dr. J. M. Penski, Extraordinary Professor of Surgery, has been promoted to be an Ordinary Professor.—*Limoges:* Dr. Donnei has been appointed Professor of Clinical Surgery and Dr. Vouzelle Professor of Clinical Midwifery.—*Modena:* Dr. Giuseppe Ovio has been appointed Extraordinary Professor of Ophthalmology and Dr. C. Ferrai Extraordinary Professor of Forensic Medicine.—*Moscow:* Dr. A. A. Maklakoff, *privat-docent*, has been appointed Professor of Ophthalmology.—*Parma:* Dr. Giusto Coronedi of Sassari has been appointed Professor of Materia Medica and Experimental Pharmacology.—*Philadelphia (Jefferson Medical College):* Dr. Francis T. Stewart has been appointed to the Chair of Surgery in succession to Dr. W. Joseph Hearn, resigned.—*Rio de Janeiro:* Dr. Francisco Simoes Corrêa has been appointed Extraordinary Professor of Children's Diseases in succession to the late Dr. Candido Barata Ribeiro.—*St. Petersburg (Military Medical Academy):* Dr. A. L. Poliênoff has been recognised as *privat-docent* of Surgery.—*Tomsk:* Dr. A. Lindström, Extraordinary Professor of Dermatology, has been promoted to the Ordinary Professorship.—*Vienna:* Dr. Wilhelm Wiechowski, of the German University of Prague, has been appointed Extraordinary Professor of Pharmacology. Dr. Alfred Tröhlich has been recognised as *privat-docent* of Pharmacology.

HEALTH PROBLEMS IN THE POTTERIES AND THE FEDERATION OF THE SIX TOWNS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Stoke-on-Trent, May 2nd, 1910.

AFTER many years' discussion the "Six Towns," once known as the "Five Towns," have united. Burslem, Fenton, Hanley, Longton, Stoke, and Tunstall have amalgamated under the name of Stoke-on-Trent into one borough. Hanley, with its population of close upon 70,000, was the most important town of the six, though Stoke was the chief railway centre and had the most ancient ecclesiastic history, for no less than 28 parishes have been carved out of its territory. But it was at Burslem that Josiah Wedgwood regenerated the potter's art, and, as a matter of fact, each of the six centres has its particular claims to be considered as the most important constituent of the group. Such records have led on several occasions to a keen display of parochial patriotism, stimulated by the fact that in any scheme of fusion there would be but one mayor where there had been six mayors, while all the principal municipal dignitaries would be proportionally decreased in number. The one borough that replaces the six towns came into existence on March 31st, and already it is settled that there shall be but one town clerk instead of six town clerks. This will be an economy in the long run, but will probably cost more at first for the usual reasons which prevail in these situations—viz., the dispossessed town clerks will receive pensions and the new town clerk with the increased responsibilities of the single post will have a commensurate salary. The question of the medical officers of health will probably be settled in the same fate, though this has not yet been decided. The six medical officers of health receive salaries that vary from £100 to £200 a year and are also in private practice, the appointments being part-time ones. It is now proposed to have but one medical officer of health for the united six towns, who will be a whole-time official, and who, it is suggested, will be paid £800 a year.

A Question of Headquarters.

Before deciding all the details of unification the new borough council had to fix its own headquarters. So great was the fear of appearing to show any preference for any one of the six towns that the first meeting was held at the largest hotel in the six, viz., the Stafford Hotel. Then the council decided that it would meet in the six town halls each in turn without preference or favour. After this experience it might be able to decide which of all these buildings was the most suitable. Apparently, however, everybody knows already which is the most suitable, for not only is the town hall at Hanley the largest, but the old Hanley town council, anticipating that the federation of the six towns would take place sooner or later, actually built a council chamber large enough to hold the new council whenever it came into existence. On the other hand, both Stoke and Burslem, being dissatisfied with their town halls and apparently not believing that the federation would be brought about for many years to come, have just begun building new town halls. Now these buildings will not be wanted as town halls, though they can be used for meetings, concerts, balls, and various shows or entertainments. Will the new borough council, which consists of 104 members and therefore requires ample space, select one of the new town halls now in course of construction, will it go to Hanley where a large enough council chamber already exists, or will it build yet another town-hall especially for itself? Whatever may be the ultimate solution of this problem it is essential that the council should not only have a convenient meeting place but that the offices for all the services should be close at hand, if possible under the same roof. Further, the offices need to be not only large enough for the increased staff now needed but for additions which will surely be brought into existence by forthcoming social legislation. We used to have school boards on one side and municipal bodies on the other. Now the two governing bodies are merged into one, and the space occupied by the centralised administration needs to be very large. Obviously there will be a great alteration effected sooner or later in our Poor-law administration, but even if the boards of guardians share the

fate of the school boards the work will have to be done somewhere, and if more is done—which would be the justification for the change—more aggregate space would be required. Even without any such vast change the existing services are likely to increase. Thus if private slaughter-houses are suppressed and there are established public abattoirs on modern lines, the offices under the Markets Committee will have to be larger than those needed at present. The offices of the medical officers of health also may need considerable enlargement if, as has been proposed, all services bearing upon health, not only the medical inspection of school children but also the poor relief to the sick, are united under one head. Any of these changes may occur at Stoke-on-Trent, while if the new council purchases the tramways and the water-supply totally new offices will be required. It is doubtful if any of the existing town halls will be big enough for the new borough if many of the expected developments occur. Towns of 30,000 to 70,000 inhabitants are not to be compared to this new borough, which has a population of a quarter of a million. It would be folly to begin with unsuitable premises; inconveniences due to unforeseen developments accumulate only too soon in the course of time. Thus it seems to me that the new council should start in life with plenty of elbow room and ample provision for the likely increase in the number of services it will have to take in hand.

Problems Facing the Council.

There are some very complex problems facing the new borough which have their origin in the fact that the six towns should have amalgamated many years ago, or should at least have instituted joint boards, as was actually done to some extent in the provision of an isolation fever hospital. There is the Hanley, Stoke, Fenton, and Longton Joint Hospital Board, in which case four out of the six towns are united in respect to hospital accommodation for the isolation of infectious diseases. But they did not all join together at once. They came in according to the order indicated by the title of the board. Now what will be done? Will this board be dissolved and a municipal committee substituted? Will the patients from Burslem and Tunstall be taken to the hospital of the four other towns? This, however, is a minor question when compared with that of the drainage system. For this purpose a joint board should have been formed years ago, for it is absolute folly that towns touching one another should each have a separate drainage system. If many years ago the six towns were really separated by wide spaces and open fields, they are now in such close touch that the inhabitants themselves have forgotten the boundary lines. From Tunstall at the extreme north to Longton at the extreme south there is a distance of about six miles, and east and west for distances varying from a quarter of a mile to two and even three miles there are houses, works, and potteries closely built or touching one another, and constituting one great mass of dwellings and workshops that must be considered and governed as one great town. Yet and often in direct contradiction to what the conformation of the land indicates should be done, there are at present six totally different schemes of drainage with separate sewage disposal works. Unfortunately, some of these latter have only recently been installed and have not yet been paid for. Will the whole of the new borough have to be taxed to pay for liabilities incurred by only one out of the six towns now federated? This would be particularly hard if the works should prove of no use to the general scheme of drainage to be introduced for the whole of the newly constituted borough. As it is the fall is from Hanley to Stoke. The Hanley sewage disposal works had to be built at a somewhat higher level than the frontier line between Hanley and Stoke. If the sewers were continued from Hanley into Stoke there would have been no difficulty, but at the time when this must have suggested itself to engineers the two towns would not work together. So the Hanley sewage stops at the Stoke frontier, and four Shone ejectors have to be employed to raise up the lower portion of Hanley sewage to the level of the Hanley sewage disposal works. Obviously such complications would not have arisen had there been a joint drainage scheme, and now that all the towns are federated such a joint scheme should be introduced. The same arguments apply to many other questions, such as the water-supply, the tramway service, the public abattoir question, and other matters that intimately concern the health and the comfort of the population.

The look-out is very interesting and in many directions very promising. When legislative sanction is needed for some great reform, such as the compulsory closing of private slaughter-houses, it will be much more easy for the borough of Stoke-on-Trent with its quarter of a million inhabitants to meet the expense of promoting a Bill in Parliament than it would have been for any one of the six towns to make such an attempt. Such considerations engender the hope that an era of great reforms is dawning on the Staffordshire Potteries.

In discussing these matters with the sanitary authorities and local medical practitioners it became obvious that by federation the six towns would more easily realise those reforms that are urgently needed. The Potteries do not enjoy a good reputation in regard to public health. So much is this the case that on several occasions the Local Government Board has had to hold official inquiries. Undoubtedly one of the first requirements is cheap water, and it will be much easier for a big borough to obtain this necessity than for a number of small local authorities. The water is needed to flush the sewers, but, above all, to flush the domestic drains.

Infantile Mortality.

There has been very high infantile mortality in the Potteries, and this has led to the denunciation of specific evils. For instance, much was said concerning the prevalence of lead poisoning. That this used to be a cause of miscarriages is certain, for these accidents ceased on the women leaving the works where lead glaze is made for the pottery. But this does not occur now, in any case not to the same extent. Nor can the excessive deaths of the infants be attributed solely to the fact that their mothers go to work. At all events, at Longton it has been established that only 25 per cent. of the mothers of certain defunct infants went to work. The chief cause seems to be insanitary surroundings, coupled with the ignorance of the parents, who do not know how to feed their infants or how to bring them up in a cleanly manner. There is the excessive prevalence of summer infantile diarrhœa, but mothers are as ignorant, dirty, or careless in winter as in summer. If, therefore, the results are worse in summer, this is the consequence of insanitary conditions, and first among these is the cesspool system. Given proper drainage the mother's ignorance would not produce such disastrous effects.

Fortunately, and most wisely, the authorities have attempted to deal with both evils. The towns have appointed lady sanitary inspectors whose special mission it is to call on young mothers and endeavour to teach them how to nurse their infants. This fact alone goes a long way towards explaining the gratifying reduction of infantile mortality during recent times, though of course there are many other reasons and notably the partial improvement of the drainage. As the new borough has only just come into existence, it possesses no record of its own. To take up the statistics of each of the six towns separately would be a very lengthy process; but the conditions of the towns do not greatly vary, therefore two or three examples will suffice to illustrate the main matters at issue. Thus at Longton there is a population of 38,287, which is equal to an average of 5·14 inhabitants per house. The birth-rate in 1909 was 33·4 per 1000, and therefore considerably above the birth-rate of both the large and small towns of England and Wales. Yet it is a decreasing birth-rate. The death-rate was 17·0 per 1000, and therefore also higher than the average of the towns, which was 14·7 in the 76 largest towns. Now the infantile death-rate was 156 per 1000 births at Longton, 118 in the 76 largest towns, and 111 in the 143 smaller towns. If figures have any significance, these statistics undoubtedly testify to a very serious situation, though when compared to the record of previous years they undoubtedly indicate that a great improvement has been effected. Thus, ten years ago, in 1900, the infant mortality at Longton was equal, per 1000 births, to 255·7. In 1902 it had fallen to 195·7, but rose the following year to 215·1. Then it was just a little below 200 till 1906, when it rose again to 234·5. In 1907 it was only 170; in 1908 it was 183. These figures engender the hope that a permanent and substantial reduction has been effected.

The education in the care of children afforded by lady sanitary inspectors who call on young mothers has had

good effect. The same may be said concerning the obligations on employers to apply methods of ventilation and facilities for washing and other measures to reduce the risk of lead poisoning among the workers. It would be well if in this respect the workers could be induced to make better and more constant use of the means given them to cope against the danger of absorbing the lead dust. Whatever there may be to say concerning the education of the workers in the Potteries or of the young mothers in their homes, these important problems are not directly affected by the federation of the six towns. But if coercion of any sort is necessary, and especially if new by-laws are required, then the federation of the six towns will prove a decided advantage. A rule is now needed, for instance, to abolish all privy cesspools. But it would be absurd to compel effective drainage of one side of a street because the street was in one town and to leave another side of the same thoroughfare alone because it is in another town. These towns touch each other and often are only separated by the partition walls of the houses. The problem of infantile mortality has already been bravely attacked in the six towns, but reformers will find their work simplified by federation.

Cesspools and Public Health.

The study of the records published by the medical officers of health clearly shows that to wait till the households voluntarily introduce proper domestic drainage is to unnecessarily sacrifice many human lives. It is true that the figures given indicate that there was a marked improvement at Longton last year, but nevertheless we find that out of the 15 cases of enteric fever notified 14 lived in houses where there was no water-closet, and in none of these houses were the drains ventilated. Of the 21 deaths from July to October among infants due to diarrhœa one lived in a house where there was a water-closet, six lived in houses with privy cesspools, and 14 in houses where the closets have no water but must be flushed, when they are flushed, by hand. If we take the closet accommodation for the whole town it will be found that there are 1809 houses with privy cesspools, 927 with slop-water closets, 350 with fresh-water automatic closets, 3088 with hand-flushed pans, and only 2021 houses with proper cistern-flushed water-closets. The statistics of previous years show how enteric fever and diarrhœa find the greater part of their victims where the system of drainage is most faulty. Thus in 1907, when the infantile mortality was comparatively low—namely, 170 per 1000—there were 23 deaths of infants during the summer from diarrhœa, and again only one of these children lived in a house with a proper water-closet. Twelve of the houses had hand-flushed pans, and three of these were noted as being especially dirty, six houses had cesspools, and four the system by which the dirty slop water flushes the pan. There were 27 cases of enteric fever notified that year, and not one of them occurred in a house with a water-closet, but six took place where there were cesspools, and all the other houses had inferior systems of drainage.

The year 1906 was a very bad year. The general death-rate was 22·9, and the infantile mortality reached the alarming figure of 234·5 per 1000 infants. This was due in great measure to diarrhœa, which was responsible from August to October for the death of 102 infants and 18 children under five years of age. Now no less than 51 of these victims lived in houses where there were cesspools, and only seven in houses with water-closets. There were 44 houses with hand-flushed pans, 24 of them being in a filthy condition, and there were 10 with closets that depend on dirty slop-water for such cleansing as they may get. In the same year 32 cases of typhoid fever took place in 30 houses; of these, five houses had water-closets but one of them was not ventilated. The previous year, 1905, there were 26 cases of enteric fever in 20 houses, and not one of these dwellings had a water-closet, but no less than 13 had privies. There were 41 deaths from summer diarrhœa—35 infants and six children. Among the dwellings where these deaths occurred, only two houses had water-closets, but 21 had cesspools. It would be difficult to find more emphatic figures. In 1904 there were 2867 privy cesspools and only 1369 water-closets. The latter we have seen increased to 2021 in 1909 and the privies decreased to 1809. Thus, during the greater part of the period mentioned above the decreasing number of cesspools and increasing number of water-closets have a tendency to equilibrate; and were both systems equally good there should be no marked difference in the number of deaths occurring in houses with water-closets and houses with cesspools. Yet for the four years for which I was able to obtain the figures—1909, 1907, 1906, and 1905—there were 99 deaths from enteric fever, of which only seven occurred in houses with water-closets and 92 in houses that had some inferior system of drainage, including 33 cesspools. In the same period there were 205 deaths from infantile epidemic summer diarrhœa, including in that figure a few children under 5 years old. Of these, only 11 occurred in houses with water-closets, whilst out of the remaining 194 deaths no less than 84 took place where the old cesspool system is still preserved.

Undoubtedly the cesspools are not alone to blame. The houses with water-closets are inhabited by the more fortunate and well-to-do sections of the community. But even making every allowance for these social and economic differences, the cesspool system stands condemned, and this new evidence only confirms what sanitary reformers have energetically urged for now more than half a century. But to abolish the cesspools and to compel all householders to connect with the sewers that fortunately exist throughout the district the local authorities must have increased powers. Then water-closets are not practical unless there is sufficient and cheap water. For this also the larger the authority, the more wholesale the transaction, the cheaper will be the results. It is in such matters that the Potteries will benefit from the federation of the six towns.

(To be continued.)

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol and a Proposed Settlement.

Professor Lloyd Morgan presided over a large and enthusiastic meeting held recently in the large hall of the University, which was addressed by Dr. John Kelman of Edinburgh on the subject of university settlements. Among the many admirable points upon which he laid stress was the fact that a settlement provided means for the study of "clinical" economics, without which no university could pretend to teach the subject of economics satisfactorily; by such means it was to be hoped that the time would come when public administrators would be trained for their work as thoroughly as those who enter other professions. He congratulated the University of Bristol on the inclusion of a settlement as an integral part of itself while it was still in its infancy. A resolution welcoming the formation of a settlement was passed with acclamation; and Professor G. H. Leonard, who spoke in support of the resolution, said that it was proposed to make special facilities for the training of persons for Local Government Board posts and other administrative appointments.

An Officers' Training Corps.

The Officers' Training Corps is an organisation for the training of officers in two divisions. The junior division consists of the cadet corps of the public schools, reorganised and coördinated, and the senior division has been in the same way built up from the Universities' Volunteer Corps, together with the Inns of Court and Artists Rifles. Men pass from the junior to the senior division, and from the latter into the Territorial Force or into the Special Reserve. The University of Bristol, which was without a Volunteer organisation at the time when the Officers' Training Corps was formed, has now done its share by the creation of an infantry contingent, which, though small at present, is certain to grow, and may, it is hoped, become the nucleus of a department of military education in Bristol. The contingent will go to camp at the end of July with similar contingents from several other Universities, including Birmingham, whose adjutant, Major Loring, of the Royal Warwick Regiment, acts in a similar capacity for the Bristol contingent.

Agricultural Research.

The famous Bath and West of England Agricultural Society has made arrangements with the University of Bristol for the investigation of insects and other pests on

behalf of farmers without charge, and for experimental research and systematic instruction relative to the manufacture of cider.

May 24th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Medical Institution and King George V.

AT a special meeting of the Liverpool Medical Institution held on May 19th, Dr. T. R. Bradshaw, the President, being in the chair, an address to His Majesty King George V. was adopted. The adoption of the address was moved by Dr. A. T. H. Waters, the senior past-president of the society, seconded by Mr. Chauncy Puzey, past-president, and supported by Mr. Edgar A. Browne, also a past-president. The text of the address is as follows:—

To the King's Most Excellent Majesty,—

The Members and Associates of the Liverpool Medical Institution desire to record their deep sorrow at the death of their beloved Sovereign, King Edward VII. They desire to express their appreciation of the sympathy which, throughout his memorable career, he manifested with every movement for the social and physical advancement of his subjects, and more especially with the work of the medical profession, which he showed in a signal manner by graciously consenting to be enrolled among the Fellows of the Royal College of Physicians and of the Royal College of Surgeons. They respectfully offer to your Majesty, and your Majesty's Royal Consort, to her Majesty the Queen-Mother, and to the other members of your Royal house, their profound sympathy in the loss which you and they, together with the whole British Empire, have sustained, and they beg to assure you of their loyalty and attachment to your Majesty's Throne and person.

West Derby Guardians and Medical Appointments.

At a recent meeting of the West Derby guardians the clerk reported the receipt of the following communication from the secretary of the Local Government Board:—

I am directed by the Local Government Board to acknowledge the receipt of your letter of the 20th ult., and to express their satisfaction on learning that the guardians of the West Derby Union have passed a resolution that in future no applicant for an appointment under the board of guardians who is a member of the board, or who has been a member of the board within a period of six months prior to the date of such appointment, shall be eligible. In the circumstances the Board will not offer objection to the appointment of Mr. H. M. Mitchell as district medical officer. They accordingly approve of the payment to him of the salary of £150 per annum for his services, and now direct that the said salary shall be paid to him by the guardians in accordance with the terms of the orders in force on that behalf. The Board request to be informed as soon as Mr. Mitchell has removed into his district.

Hospital Saturday in Liverpool.

In connexion with the Liverpool Hospital Saturday Fund, the various firms and their employees who contribute week by week to this excellent institution on Saturday last made up their accounts with the object of forwarding their annual remittances to the honorary secretaries of the fund. Since the establishment of the fund as much as £179,360 4*s.* 5*d.* have been collected and distributed in conjunction with the Hospital Sunday Fund to the various medical charities. An urgent appeal was now made, and as an incentive to a more generous support of the fund the guarantors have notified that they will be prepared to double any increase of contributions over the total received during the year 1906. A special supplementary collection was made on Saturday amongst the workpeople towards the fund.

The Birkenhead Guardians and the Need for Isolating Small-pox Patients.

At a meeting of the Birkenhead guardians held on May 3rd attention was again called to the absence of an isolation block for small-pox patients, and it was decided to send copies of the correspondence between the board of guardians and the corporation of Birkenhead to the Local Government Board.

Small-pox Outbreak in New Ferry, near Birkenhead.

A serious outbreak of small-pox, directly traceable to the escape of a patient from the Liverpool Port Sanitary Hospital, which is located at New Ferry, on the Birkenhead side of the Mersey, has occurred there, no fewer than 14 patients being in the hospital. The incident which is regarded as the inception of the outbreak occurred a short time ago. A Spaniard had been taken to the hospital suffering from small-pox, and, in a state of delirium, rose suddenly from the bed, and overpowering the night nurse jumped through a window. Escaping practically unhurt he roamed about the district for some time before being captured, coming into contact with several residents in the meantime. The first case of the disease was reported on May 15th, when a man living in Prospect-place, a poor neighbourhood, was found to be suffering from a mild form of small-pox. His little son, however, was suffering from a very serious attack, and was promptly removed to hospital. Since then 14 cases, all in the same street, have been notified, and all of these have been taken to hospital—7 to the port sanitary hospital and 7 to the small-pox hospital at Greasby. The most rigorous preventive measures have been adopted by the acting medical officer of the district under the instructions of the health committee of the Lower Bebington district council. The inhabitants of all the houses in which cases have occurred have been sent to Pensby, where they are accommodated under canvas. Prospect-place has been barricaded off in order that people may not traverse it until the fear of infection is no longer existent. The strictest surveillance is being exercised to prevent the disease becoming epidemic. All the schools were temporarily closed. The first patient found suffering from small-pox stated that he had been in contact with the Spaniard on the night of his extraordinary escapade. Experience of former epidemics proved that the "conscientious objector" to vaccination realises that discretion is the better part of valour, and in such an experience throws his objections to the winds and requisitions the services of the public vaccinator.

May 23rd.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis Dispensary for Cardiff.

THE medical officer of health of Cardiff, Dr. E. Walford, has laid before the health committee of the corporation as a preliminary communication that section of his annual report for 1909 which has reference to the prevention of tuberculosis. Among the preventive measures which have already been adopted by the corporation are the voluntary notification of cases of phthisis, the provision of facilities for the gratuitous bacteriological examination of suspected sputum, the distribution to the poor of spit-bottles free of charge, and such educational measures as are included in the distribution of literature and in the instruction given by health visitors and sanitary inspectors. There is, however, no special dispensary for cases of phthisis, such cases being treated at the out-patient department of the Cardiff Infirmary, at the Provident Dispensary, by the Poor-law medical officers, and by private practitioners. Dr. Walford considers that a central and special tuberculosis dispensary under municipal control would very much facilitate the organisation of a proper system of home visitation by the health visitors employed by the corporation, and would be the means of securing the early diagnosis of patients suspected to be suffering from the disease. He points out that the health committee already possesses suitable accommodation which could be set apart for the purpose of a dispensary, and suggests that an additional health visitor should be appointed and the services of a medical officer retained at an honorarium of £50 per annum. The cost of drugs and instruments he estimates at £25 per annum. The institution would thus be carried on at an annual charge of less than £200 yearly. The health committee has accepted the principle of the proposals, so it may be assumed that there will be no great difficulty in giving effect to them.

Pontypridd Cottage Hospital.

In spite of the great liability of the workmen to accidents there is a noticeable absence in some of the colliery districts of South Wales of hospital accommodation. Merthyr Tydvil possesses a well-equipped hospital with about 50 beds; at Aberdare and at Mountain Ash there are small cottage hospitals with 10 or 12 beds; and at Porth, in the Rhondda Valley, there is a cottage hospital with accommodation for 20 patients. The town of Pontypridd, which has a population of over 40,000 persons, is at present unprovided with any such institution, although successful efforts are being made to provide one. On the hillside overlooking the town and near to the celebrated rocking stone a site has been given, and

nearly £4000 have been subscribed towards the cost of erecting a small hospital. The foundation stone of the building was laid on May 5th by Lord Tredegar. The central portion of the hospital will be of two storeys, and on either side will be one-storey wings. The accommodation provided will be for 14 patients.

May 24th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Attendance in the Highlands.

THE annual report of the medical officer of health of Inverness-shire reveals a somewhat startling state of affairs apparently existing in the Highlands. From his report it would appear that 259 deaths in the county—i.e., over 27 per cent.—have not been certified by a medical practitioner. This, unfortunately, appears to be due not so much to an absence of official formalities as to a lack of medical attendance in the Highlands, and particularly in the Islands. This obviously represents much suffering, loss of life, and misery which might be obviated if medical attendance were available. The great difficulty, no doubt, is not only the difficulty of communication but the sparseness of population in the Highlands. A special grant by the Treasury in aid of medical attendance would certainly help matters.

Infantile Mortality in Dundee: Interesting Information.

In his annual report Dr. C. Templeman, medical officer of health of Dundee, remarks that the sanitary state of the city may be considered satisfactory. The deaths numbered 18·15 per 1000 and the births 27·29 per 1000. Deaths from consumption numbered 288. Dr. Templeman gives a history of the negotiations for the transference of Sidlaw Sanatorium to the corporation, and he points out that since the system of voluntary notification came into force in May, 1907, only 526 cases have been notified, and as showing the inadequacy of the system he remarks that the number of deaths last year exceeded the notifications by 122, and that no fewer than 189 of the deaths were first intimated to the department by the registrars. The death-rate of infants under one year was equivalent to 21·7 per cent. of the total mortality of the city and 144 per 1000 births. With regard to the scheme inaugurated in 1907 by the Home Office to inquire into the effect of the employment of married women on infant mortality, the coöperation of the medical officers of health in large industrial centres had been asked, and in Dundee the conclusions come to, after careful statistics had been compiled, were: (1) that the employment of mothers is an important factor in the high infantile death-rate; and (2) that the deaths of infants seem to recur in the same families. Dr. Templeman remarks on the growth of the unvaccinated population in the city.

Preliminary Examinations at the Scottish Universities.

The preliminary examination statistics for the four Scottish Universities have now been published. For the preliminary examination in medicine 10 entered at St. Andrews, 122 entered at Glasgow, 45 entered at Aberdeen, and 126 at Edinburgh. The percentage of candidates entered for the four requisite subjects and who passed in all these subjects in the four Universities taken together was 29·11. In Glasgow the percentage was 25·80, in Aberdeen it was 34·78, in Edinburgh 30·55, and in St. Andrews 20. It must be noted, of course, that this takes no account of students who commence their medical studies without entering the preliminary examination on account of their holding the necessary leaving certificates.

May 23rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Annual Elections at the Royal College of Surgeons.

THE election of President, Vice-President, Council, and secretary of the Royal College of Surgeons in Ireland is to take place on Monday, June 6th. Mr. R. H. Woods, the distinguished laryngologist, who is Vice-President at present, will not be opposed in his candidature for Presidency. Of late years it has been taken as fixed that the Vice-President should succeed to the higher office without opposition. For the vice-presidency there are at least two candidates in the field—Dr. R. D. Purefoy and Mr. J. B. Story. Dr. Purefoy is, of course, one of the leading obstetricians in Dublin, and ex-Master of the Rotunda Hospital, whilst Mr. Story is an ophthalmologist and surgeon to the Royal Victoria Eye and Ear Hospital. In addition, Mr. J. S. McArdle some time ago announced his intention of presenting himself this year as a candidate for the vice-presidency. Considerable interest is likely to be taken in the election of the Council on the present occasion, as it is expected that the newly-formed Association of Fellows will make itself felt. It is stated that the association contains already more than a hundred members, and it is obvious that if any large proportion of them vote in a body they will exercise a very distinct influence. Many of them, too, are resident in England or at a distance from the College, and are likely to be willing to be guided by the general policy of the association as decided by its executive committee. It is not yet clear what that general policy is to be, but it is thought that the association is not quite sympathetic with the more progressive party in the Council.

Post-Graduate Courses at the Royal College of Surgeons.

Two post-graduate courses are announced to take place under the auspices of the College. The first course will cover the period from June 6th to 28th, 1910, and the second course from Sept. 26th to Oct. 18th, 1910. The fee for each course is 5 guineas. The object is to render available the whole of the clinical material in Dublin for the post-graduate student, so that he may see as much as possible during the time at his disposal. The course will be continued in a circuit at the ten chief hospitals, besides various hospitals devoted to special subjects, according to a syllabus and daily time-table, of which a printed copy can be obtained on application to the secretary of the Post-Graduate Course, Royal College of Surgeons, Stephen's Green, Dublin. A list of apartments and certain hotels at modified rates may also be obtained.

Poor-law Reform in Ireland.

The forthcoming session of the Irish Medical Association, to be held in Dublin on June 7th, is likely to be important, since at it will be discussed the policy of the profession in Ireland as regards Poor-law reform. As stated some weeks ago,[1] the council of the Irish Medical Association is taking a plebiscite of the members of the Association concerning a report issued by its special committee on Poor-law reform and adopted by the council. The main point at issue is between schemes for a National Medical Service and for county services. There is little doubt that the majority of the profession in Ireland is in favour of a National Service, but, nevertheless, there will be a respectable body of opposite opinion. It is to be doubted whether, even with the results of the plebiscite before it, the Association will in one afternoon session be able to come to a decision, since, of course, there are domestic and various other matters also for discussion. It is felt to be important, however, that the views of the profession in Ireland should soon be definitely formulated, more particularly as the British Medical Association is preparing schemes for England and Ireland, and there may be danger that the problems of the two countries should be confused. Everyone in Ireland, lay or medical, is convinced that the Irish problem should be treated by itself.

The Medical Profession in Ireland and the Death of King Edward.

Addresses of condolence with Her Majesty the Queen-Mother and with His Majesty King George have been adopted by the Royal Colleges of Physicians and Surgeons. In addition, both Colleges, together with the Universities and other learned bodies, were represented officially at the memorial service held in St. Patrick's Cathedral on May 20th, as well as at the votive mass at the Pro-Cathedral on the same day. The Lord Mayor being at Windsor, Alderman Dr. J. C. McWalter, who acts as his locum-tenent, attended with the members of the corporation in state at the Pro-Cathedral.

The Death of Lady Thompson.

General sympathy is felt with Sir William J. Thompson,

[1] THE LANCET, April 23rd, 1910, p. 1169.

Registrar-General, in the sudden death last week of his wife by a tramway accident. In reaching for the bell-strap she fell off the platform of the car, fracturing her skull.

The County Antrim Infirmary.

At a meeting of the committee of management of this institution on May 18th, Mr. G. L. St. George, surgeon to the hospital, complained of statements made at a recent meeting of the committee of the county council to the effect that patients from the northern end of the county were refused admission, and that the place was run by a few ladies. Mr. St. George emphatically denied these statements. A gentleman, a member of the infirmary board of management, who had been on a deputation to the county council, stated that there was a great deal of misapprehension in the minds of the county councillors which should be dispelled. They seemed not to be aware that the infirmary was really a county institution. It was also stated that 14 members of the county council were entitled to attend the meetings of the infirmary board of management, and yet none had inquired as to the statements made, and while they were all provided with books of admission lines they had not issued any. It was finally decided to put the whole matter in the hands of a committee, which is to deal with the county council. It appears that the county council contributes £600 per annum, a sum which would only keep the infirmary going for six months in the year.

The Children Act Committee.

Councillor A. Trimble, M.D., has been elected chairman of the new committee appointed by the Belfast city council to deal with the Children Act.

Medical Appointment.

The post of medical examiner of naval recruits and local agent for the Belfast district, which is in the gift of the Crown, is now vacant. There are a great many applicants.

May 24th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

King Edward VII. and the Berlin Medical Profession.

THE unexpected death of King Edward VII. created a general feeling of sorrow and sympathy in this country and was especially regretted by the medical profession of Berlin. It may be remembered that during his recent visit to this city the King, notwithstanding the shortness of his stay and its well-filled programme, had, nevertheless, found time to meet some members of the medical profession and to visit a medical institution. As already mentioned in THE LANCET, he was shown over the Empress Frederick House, an institution for post-graduate study, originally under the patronage of the late Empress Frederick. King Edward spent some time in seeing over the establishment, and even attended a short lecture delivered by Professor Kutner, the director. All the medical men who had the honour of being introduced to his Majesty and of conversing with him were full of admiration for his unostentatious manner, his good humour, and unfailing courtesy.

Serum Treatment of Scarlet Fever.

At a recent meeting of the Berlin Medical Society Dr. Jochmann, physician to the Virchow Hospital, read a paper on Modern Methods of Treatment of Scarlet Fever. He said that streptococci were present in the organs of the great majority of scarlet fever patients, especially in those who had died from complications. Although it was uncertain whether streptococci were the exciting cause of the disease, Dr. Jochmann had obtained good results by the administration of antistreptococcic serum, especially of that which was prepared at the Höchst factory, according to the method of Dr. Meyer and Dr. Ruppel. The serum was tried exclusively in serious cases, for instance, in those in which the pyrexia persisted even after the exanthem had begun to fade, partial necrosis of the palate and swelling of the cervical glands being also present, sometimes with cyanosis, cardiac failure, and troubles of the sensorium. It was also tried in cases which were likely to prove fatal, cases in which on the first and second day the patients showed toxic symptoms, cyanosis, high fever, coldness of the extremities, unconsciousness, and thready pulse. Of 400 patients in the Virchow Hospital, 62 belonged to the grave and probably fatal category. As a rule, 50 cubic centimetres of the serum were administered by subcutaneous injection, and the dose was if necessary repeated after two days or oftener when no effect was visible. In very grave cases with imminent prospect of death an intravenous injection was given. In most cases the antistreptococcic serum was combined with Sir Almroth Wright's vaccine—a method which gave better results than serum alone. 28 cases, with 9 deaths, were treated by serum alone; 44, with 15 deaths, were treated by a combination of serum and vaccine. Among the 24 fatal cases 10 from the first gave no hope of success, either because the organisms which were present were not streptococci but staphylococci, or because there was concurrent diphtheria, or because the patients had arrived in the hospital in a moribund state. The remaining 14 patients suffered from an extremely severe form of scarlet fever with deep necrosis of the palate, suppuration of the cervical glands, cardiac failure, and delirium, while cultures yielded an enormous growth of streptococci. With regard to the patients who recovered, Dr. Jochmann said that the good effect became visible as a rule in from 24 to 36 hours, but sometimes, however, only after the second or third injection. Complications developed in only seven of the cases treated by serum, and Bright's disease did not ensue even once, although hæmorrhagic nephritis was a special feature of this year's epidemic. Undesirable symptoms due to the serum treatment itself included an exanthem resembling urticaria, which developed in eight cases; pains in the joints also occurred, and in one instance a pre-existing insufficiency of the mitral valve became worse after an intravenous injection. Dr. Jochmann said that the Höchst serum was, of course, not an ideal remedy against scarlet fever; in septic cases, where the blood was overcharged with streptococci, the patients could not be saved by the serum; cases with incipient necrosis of the tonsils and incipient toxæmia were suitable for this form of treatment.

Death of Professor Lenhartz.

Professor Hermann Lenhartz, chief physician to the Eppendorf Hospital in Hamburg, died in that city on April 20th, at the early age of 55 years, from pernicious anæmia. He had been an assistant to the late Professor Wagner of Leipsic, the well-known pathologist, and at first devoted himself almost exclusively to pathological anatomy. Subsequently he became extraordinary professor of clinical medicine and chief of the Leipsic University Polyclinic. In 1895 he went to Hamburg to become a chief physician to the hospitals, first to the St. George's Hospital and afterwards to the Eppendorf Hospital, and the organisation of the great Hamburg hospitals was for the greater part his work. He devised and described many valuable therapeutic methods. His published memoirs on lumbar puncture, on the operative treatment of gangrene of the lungs, on the dietetic treatment of gastric ulcer, on the puncture of typhlitic suppuration, and on the Karell treatment of heart disease and obesity were of a specially original character. He also wrote several valuable treatises on clinical microscopy, chemistry, diseases of the respiratory organs, erysipelas, and various septic diseases. When the death of Professor Lenhartz became known to the Medical Congress at Wiesbaden the President, in his eulogy on the deceased, rightly characterised him as one of the greatest physicians of Germany.

May 23rd.

CANADA.

(FROM OUR OWN CORRESPONDENTS.)

Medical Registration in the Dominion of Canada.

REGISTRATION for the whole Dominion has been again shelved. Manitoba, Saskatchewan, Alberta, and British Columbia have agreed upon a basis of interprovincial reciprocity, and the plan is likely to be put into effect in the near future.

Alexandria Hospital for Infectious Diseases in Montreal.

The annual meeting of the governors of the Alexandria Hospital of Montreal was held recently under the presidency of Dr. Roddick. The chairman, in his speech, referred to the lack of accommodation for mixed infectious cases in the

hospital and also for erysipelas patients. The greatest drawback, however, he said, was the inadequate accommodation for nurses. In fact, the building of a nurses' home seemed to him imperative. With these three wants supplied—namely, a pavilion for mixed infectious cases, an erysipelas pavilion, and a nurses' home—Dr. Roddick doubted if a more thoroughly equipped institution for the treatment of contagious diseases could be found in the world.

Opening of the New Buildings of the Medical Faculty of McGill University.

It is hoped that the new buildings of the Medical Faculty of McGill University, erected to replace those destroyed by fire some three years ago, will be ready for occupation in the early part of the summer. The opening of the buildings on June 6th and 7th is to be attended with striking ceremonies. The Medical Faculty has decided to hold the next annual Convocation for the conferring of the degrees in medicine in the new building at the same time. It is expected that more than 500 former medical graduates of McGill will take part in a reunion, which will last several days. The Governor-General will take an active part in the ceremonies, and an elaborate programme of entertainments has been prepared.

A New Home for the Toronto Academy of Medicine.

Owing to the fact that the University of Toronto is unable to give permission to the trustees of the Academy of Medicine to erect buildings on the present site the trustees have been compelled to seek the necessary ground elsewhere. It is understood that they have been offered an excellent site in Queen's Park and that building operations will be commenced shortly. The Massey estate has promised to contribute several thousand dollars to a building fund, and between £7000 and £8000 will be expended in providing a suitable building.

Resignation of Dr. Charles Sheard, Medical Officer of Health of Toronto.

Dr. Charles Sheard, who has been medical officer of health of Toronto during the past 18 years, has resigned the position.

A Bill for the Sterilisation of Criminals, Idiots, and Imbeciles.

Dr. Forbes Godfrey, a member of the Ontario Legislature, introduced a Bill during the present session for the sterilisation of criminals, idiots, and imbeciles, somewhat similar to the well-known Indiana edict. The Premier, Sir James Whitney, spoke very strongly against the Bill, which was withdrawn.

Amendments in the Regulations of the Ontario Medical Council.

An amendment of much importance has been made recently in the regulations of the Ontario Medical Council. As soon as any registered practitioner is convicted in any court of Ontario of a criminal offence his name is now automatically removed from the Register. Another amendment is to the effect that the executive committee of the Council may now institute inquiry into alleged cases of infamous conduct upon its own initiative and report to the Council. This avoids the delay which occurred formerly, as when the Council ordered an investigation nothing could be done for a year.

Farm Inspection of Milk Supplied to Montreal.

Dr. McCarrey, the chief food inspector of Montreal, has made a report to the Montreal Board of Control which he thinks will result, if carried out, in a far more pure milk-supply for the city than at present exists. He has suggested in the report that farms outside Montreal which supply milk shall be subject to inspection. The report shows that within a radius of 100 miles of Montreal there are no less than 800 farms which send milk to the city and which are not inspected. It is therefore requested that the controller appoint ten new milk inspectors, six of whom are to be employed solely for visiting farms, seeing that these are kept in a cleanly condition, that no cows are milked which are suffering from tuberculosis and that cattle-sheds are properly ventilated. In addition to inspecting farms and milk, it will be the duty of the inspectors to give farmers practical lessons as to how milk should be handled in order to prevent it from becoming contaminated. Dr. Lachapelle, who is at the head of the Montreal Board of Control, is said to be strongly in favour of a system of farm inspection of milk, cows and premises.

Children Poisoned by Pills in Canada.

A somewhat large number of deaths has been reported from all parts of Canada as the result of small children obtaining and eating pills and capsules. Parents are careless and leave pills and capsules in places from which children can easily obtain them. Medicines in these forms are, for the most part, coated with sugar, chocolate, or other sweet-tasting substance, and the child eats sufficient either to kill it or seriously to injure its health. Of course, such accidents cannot be prevented by legislation, for they are dependent wholly on the carelessness of parents.

May 17th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENT.)

Another Martyr to Science.

IN my letter published in your issue of April 23rd I mentioned the appointment of Dr. Howard T. Ricketts, associate professor of pathology at the University of Chicago, to the newly reconstituted professorship of pathology at the University of Pennsylvania. It is now my melancholy duty to record his death under circumstances that mark him as one of the martyrs to science before either he could benefit from the high honour and substantial emoluments so recently conferred on him, or the University could profit from his teaching and research work. Dr. Ricketts, who was yet a young man, having been born in 1871, graduated so recently as 1897, and spent the intervening years to date in teaching and scientific research. His work on blastomycosis and on spotted (or Rocky Mountain) fever is widely known and had already earned for him a foremost place among medical research students in this country. It seems that when agreeing last year to accept the professorship of pathology tendered to him by the University of Pennsylvania, he stipulated that it should not interfere with his freedom to pursue his studies of typhus fever in Mexico until the end of the present summer. He had already achieved results in this direction worthy of his reputation, when he was himself stricken with the disease, just as he was on the point of completing his studies. Following on the typhus fever he had spinal meningitis, and died in the American Hospital at the City of Mexico on May 3rd.

Death of Dr. H. L. Burrell.

I have also to report the death of Dr. Herbert Leslie Burrell, of Boston, which occurred on April 27th at the age of 54, from cardiac and renal disease. Dr. Burrell was professor of clinical surgery at Harvard University, and was president of the American Medical Association in 1908–09.

May 14th.

Obituary.

GEORGE WILLIAM CHASTER, M.R.C.S. ENG., L.R.C.P. LOND.

Mr. G. W. Chaster, who died on May 5th, was son of the late Mr. G. W. Chaster of Wigan. He had a brilliant academical career at University College, Liverpool, became Jones scholar in 1882, was Torr gold medalist in 1883, and in 1885 was appointed assistant demonstrator in physiology at the University. In 1889 he won the Holt Tutorial Scholarship, and became assistant demonstrator in anatomy and clinical assistant at the Liverpool Royal Infirmary. In 1889 he took the diplomas of M.R.C.S. Eng. and L.R.C.P. Lond. He was in active practice in Southport until a recent period. In 1896 he was appointed honorary assistant on the medical staff of the Southport Infirmary, and in 1903 was appointed one of the honorary medical staff, which office he filled until 1907, when ill-health compelled him to retire as consulting medical officer, a position which he retained to the time of his death. In all his work in connexion with the Southport Infirmary the self-sacrificing nature of his character came into full play, and that institution certainly had no more faithful

and devoted member on its medical staff. His activities were not confined to his profession. He ever associated himself zealously with the popularisation of natural science. He was one of the founders of the Southport Society of Natural Science, and at one time its president, and contributed from time to time some valuable original papers to its Transactions, particularly on the subjects of the local mollusca and foraminifera, on which he was an admitted authority. He acquired a most valuable collection, now bequeathed to the Southport Science and Art Schools. He did much original work in the identification of the foraminifera of the dredged material from the late *Challenger* and *Porcupine* expeditions. One year he held the important office of president of the Conchological Society of Great Britain and Ireland. He was a man of exceptionally keen powers of observation and laborious patience; thoroughness and single earnestness were characteristic of a life in great part devoted to scientific research. He will be sadly missed from the ranks of the profession and in connexion with many philanthropic agencies.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Heinrich Curschmann, professor of medicine and director of the Medical Clinic in the University of Leipsic, has died suddenly from cardiac disease, at the age of 63 years. He was born in Giessen and studied medicine in the University there, afterwards going to the Rochus Hospital, in Mayence. In 1871 he migrated to Berlin, where he had the advantage of working under Professor Traube. He was appointed to the Moabit Hospital as one of the physicians, and in 1888 succeeded Professor E. L. Wagner as professor of medicine and director of the Medical Clinic in the University of Leipsic. Since then a number of his pupils have shown by their distinguished careers what an excellent teacher they had had. His own works included "The Relation of the Labyrinth of the Ear to the Body Weight," many papers on Psychic Hæmianopia, Bronchial Asthma, Infectious Diseases, Hospital Construction, and Kidney and Intestinal Diseases. He wrote several of the articles in Ziemssen's and Nothnagel's Cyclopædias. His "Clinical Portraits with Descriptive Text," which is a very well-known work, was published in 1894.—Dr. Gustav Edlefsen of Hamburg, who was formerly extraordinary professor of medicine in the University of Kiel and director of the Medical Polyclinic there. He published a large text-book on the Diagnosis of Medical Diseases in 1899.—Dr. Ditlevsen, formerly *privat-docent* of histology in the University of Copenhagen.—Dr. Cordier, formerly surgeon to the Lyons hospitals.—Dr. Trolard, professor of anatomy in the Algiers Medical School and corresponding member of the Paris Academy of Medicine.—Dr. Oskar Riegner, for many years senior surgeon to the Breslau Hospital, aged 66 years.—The two senior members of the profession in Germany have just passed away within a few days of one another—viz., Surgeon-General Paschen of Ludwigslust, aged 95 years, and Dr. Stolpe of Potsdam, aged 94 years.—Dr. John Landström, lecturer on surgery in the Stockholm Medical School.—Dr. J. Afanassieff, professor of therapeutics in the Clinical Institute of the Grand Duchess Helen Paulovna, St. Petersburg.—Dr. Vittorio Mibelli, professor of dermatology in the Parma Medical School.

UNITED SERVICES MEDICAL SOCIETY.—A clinical meeting of this society was held at the Royal Army Medical College on May 11th, Lieutenant-Colonel R. H. S. Sawyer, R.A.M.C., being in the chair. Major W. S. Harrison, R.A.M.C., showed two cases of disseminated sclerosis and read notes on one of primary spastic paraplegia. He remarked that the cases were interesting from two points of view: first, that two of the patients dated their illness from an attack of enteric fever; and, secondly, as showing how very varied the symptoms of disseminated sclerosis might be. Notes on a case of dysentery with gumma of the liver were read and pathological specimens of the liver and large intestine were exhibited. Lieutenant G. H. Dive, R.A.M.C., exhibited a case of congenital acholuric icterus. The chief points to which attention was directed were jaundice, variability in the depth of the jaundice, splenomegaly, oligocythæmia, anisocytosis, diminished mean diameter of the red cells, absence of bile in the urine, and presence of bile in the fæces.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

TUESDAY, MAY 24TH.

THE General Council of Medical Education and Registration commenced its summer session at its offices, 299, Oxford-street, W., to-day. Sir DONALD MACALISTER, the President, occupied the chair.

New Members.

Three new members took their seats at the Council.

Mr. ARTHUR TREHERN NORTON, C.B., F.R.C.S., was introduced by Sir HENRY MORRIS as representative for one year of the Apothecaries' Society of London.

Sir WILLIAM WHITLA, M.A., M.D., LL.D., took his seat as representative for a term of three years of the Queen's University of Belfast. He was introduced by Sir JOHN MOORE.

Mr. ARTHUR NEWSHOLME, M.D., M.R.C.S., who is a Crown nominee for England for a term of five years, was introduced by Dr. NORMAN MOORE.

The President's Address.

The PRESIDENT then delivered his presidential address. The members of the Council rose whilst the President made reference to the death of King Edward. The President said:—

We meet on the day associated for generations with the illustrious name of Queen Victoria, amid the tokens of a nation's mourning for the passing of her illustrious son and successor on the Throne. In the sudden grief which has stricken the Royal House and all the subjects of the Crown the members of our profession have shared to the full. They can appreciate, better perhaps than others, the kingly courage of our late beloved Sovereign, who under the approaches of his malady refused to yield to any but the last inexorable summons, and while conscious life remained strove resolutely to fulfil the duties of his exalted station. Nine years ago the Council at his accession hailed His Majesty as one who had ever evinced a wise and effectual interest in all that concerned his people's health. His reign, short as it was, abundantly justified the acclamations with which it began. It will ever be memorable on account of the beneficent undertakings for the well-being of his subjects which King Edward initiated or fostered, no less than for its great achievements in the cause of peace and concord among the nations. Happily for us, His Majesty King George has already shown that His Royal father's interests and sympathies are also his own, and that we may confidently reckon on his enlightened solicitude for every national institution whose purpose is to further the moral and physical amelioration of the peoples committed to his care. It will, doubtless, be your desire that I should presently, as our first business, propose from the chair that the Council tender to His Gracious Majesty a humble and loyal address expressive of our sympathy with the personal sorrow of the Royal Family and of our devotion to His Majesty's Throne and person. Its terms may well echo those of the address which His late Majesty was pleased to accept in 1901, for our feelings and our hopes concerning King George are in perfect consonance with those we sought to express in approaching King Edward.

After ten years of valued service Sir Hugh Beevor and Sir William Henry Power have retired from the Council. The one in relation to the work of the Executive and of the Students' Registration Committee, and the other in relation to that of the Public Health Committee, have long enjoyed the Council's confidence and repeatedly earned its gratitude. We part from each with a sense of personal loss, for each made himself a friend as well as a colleague; and we trust that each will carry with him a cordial remembrance of the Council and its activities. Mr. Arthur Trehern Norton, C.B., will in future represent the Apothecaries' Society of London, and Dr. Arthur Newsholme, who worthily occupies Sir William Henry Power's position at the Local Government Board, now succeeds him here by the appointment of His Majesty in Council. To them, and to Sir William Whitla, the representative of the new Queen's University of Belfast, whose

eminence is recognised wherever scientific therapeutics are studied, we offer the right hand of fellowship. We are sure that they will find in the Council fresh opportunities of applying their talents and their experience for the benefit of the public. Before long we may expect the further addition of three new members to our number, by appointment of the Universities of Wales and of Bristol, and by direct election of a fourth representative of the registered practitioners of England and Wales. The problem of accommodating the Council thus enlarged may offer some difficulty; but meanwhile the Registrar has, by some readjustment of seats, made provision that will meet the immediate need. We are still faced by the problem of finance. By such husbanding of our resources as is practicable we have reduced the deficit of £656, reported last year, to a deficit of only £146 in the financial year now closed. But with the prospect of a costly election in the near future, and the greater expense of a larger membership, it is scarcely possible to expect that income and expenditure will so nearly balance during the succeeding years. The cost of our judicial proceedings is hardly within our control; and though we have sought a way of lessening it through some process of delegation, the acumen of our advisers has not yet succeeded in discovering a method that is free from legal or practical objections. The task of exhaustively revising the Medical Register, begun by the Registrar and his staff in 1908, has now been completed, with the result that the volume is probably more accurate than it has ever been before. The work has involved an enormous amount of correspondence with practitioners all over the world, and much research in books of reference, University and College Lists, and Colonial Registers. In one year over 14,000 alterations or additions had to be made in the Register, many perhaps trivial in character, but all necessary for correctness. Taking account of the fees paid for the entry of additional qualifications and the like, the cost of the whole revision is less than £165, and in view of the fact that during the process communication has been established, directly or indirectly, between the office and every person whose name is on the Register, it will be agreed that though the labour involved has been heavy the charge on the Council's funds has been justifiable and moderate. Special thanks are due to the Registrar for directing the operations, and to Mr. King, Mr. Cockington, and Mr. Storr for carrying them out with efficiency.

Turning to external matters, I have to report that the Legislature of Prince Edward Island has passed an Act enforcing a five years' course of study at an approved University or school of medicine on candidates for the qualifying examinations conducted by its Medical Council. The Executive Committee has accordingly agreed to recognise the provincial diploma or licence in medicine, surgery, and midwifery as a qualification registrable in the Colonial List, in pursuance of His late Majesty's Order in Council of Jan. 10th, 1910. Information has reached me that a conference is about to meet in Canada, at which representatives of the medical authorities of the several provinces will discuss the possibility of federal action in regard to medical registration within the Dominion. Should the conference lead to the ultimate establishment of a Canadian Medical Register in place of or in addition to the numerous provincial registers now in use, the question of reciprocity as between this country and the Dominion would be greatly simplified. I cannot help expressing the hope that this result may be speedily attained. It would certainly strengthen the bonds that unite us to our professional brethren beyond the seas were British medical qualifications, whether registered in the Home or the Colonial List, to become valid throughout the Empire.

Our legal adviser's attention was called to a private Bill which was introduced in the House of Commons early in the year at the instance of the Apothecaries' Society of London. The Bill proposed to authorise the Society to confer diplomas in dental surgery and in various special branches of medicine. It also proposed that the Medical Council should be required to accept certain of these diplomas for registration under suitable conditions, though similar diplomas conferred by other licensing bodies are not at present registrable under any conditions. The Executive Committee was advised that the proposals referring to the Medical Council involved an amendment of the Medical Acts, which, if made at all, should be made by means of a public Act, and should be rendered applicable to other licensing bodies. A representation to this effect was accordingly transmitted to the Government. On the matter coming before the House of Commons in March the Speaker ruled that the proposals in question were not of such a nature as should be dealt with by a private Bill, and the measure was thereupon withdrawn from the consideration of the House. The Executive Committee has also been informed that the Privy Council received a petition from the Apothecaries' Hall of Ireland, praying that the Medical Council might be directed to recognise the Preliminary Examination in general education held by the Apothecaries' Hall as sufficient for the registration of medical students. The Lords of the Council decided that the subject-matter of the petition did not fall within their purview, and informed the governing body that they were unable to comply with the prayer of the petition.

The Departmental Committee on Coroners, which was instructed by the Secretary of State for the Home Department to report also on the subject of anæsthetics, has issued its conclusions. These are in general accordance with the resolutions adopted by the Council at its last session. The resolutions have also (except as to one point of detail) been endorsed by the Council of the Royal College of Surgeons of England and have been favourably received by other authorities. It is to be hoped that for the protection of the public steps may soon be taken to regulate by law the administration of anæsthetics and to restrict this important branch of medical practice to persons who are duly qualified to conduct it with safety.

By a recent judgment the House of Lords has finally decided that Section 3 of the Dentists Act imposes on an unqualified person no restriction other than the prohibition to use a title (such as "Dentist" or "Dental Practitioner") implying that he is registered. The clause which other courts had regarded as implying a wider prohibition—namely the prohibition of any claim to be "specially qualified to practise dentistry," whether expressed by the use of a title or conveyed by general words importing personal skill and competence, is now decided to be no more than synonymous with previous clauses, and therefore to be in itself mere surplusage. The Dentists Act has hitherto been thought more stringent than the Medical Act, if not quite so stringent as the law dealing with veterinary practice. But the former Act now proves, when interpreted by the ultimate tribunal, to afford no greater protection to the public against the unqualified practice of dental surgery than the Medical Act affords against the unqualified practice of medicine, and much less than the law confers with regard to the medical treatment of domestic animals. So long as the unqualified person avoids the direct use of certain professional titles, he may use such other misleading descriptions as his ingenuity suggests, and the present law imposes no restraint upon him. On April 1st in the present year the provisions of the Midwives Act came into full operation, and it is now a punishable offence for a woman habitually and for gain to practise midwifery, or to call herself a midwife, unless she is legally certified and enrolled. But any person, however ignorant, may habitually and for gain undertake to practise medicine, surgery, or dentistry, without being required by law to furnish any evidence of his training or skill. The public who resort to him must perforce accept his own statements as to his competency to treat their disorders.

There are not wanting indications that the public are becoming aware of the insufficiency of the existing law. The wide publicity given to the House of Lords' judgment has not been without effect in this direction, so far as concerns the dental branch of surgery. The Report on Anæsthetics has called attention to the unprotected state of the public in another direction. And now I learn with much satisfaction, through Sir Almeric FitzRoy, that arrangements are in progress for the publication, in the form of a Parliamentary paper, of the information on the subject of unqualified medical practice collected by the Local Government Board. That department, we are told, has received a large body of valuable and important evidence in response to the circulars which, at the instance of this Council, it issued to the medical officers of health throughout the country. For the formation of an enlightened public opinion, and, may I add, of an enlightened Parliamentary opinion, an authoritative compilation of the kind now promised is almost a pre-requisite. I trust its publication

will prove to be only the first fruit of the labours of Dr. Langley Browne's Committee on Unqualified Practice.

The experience of the past year or two has taught me that measures are not infrequently introduced into Parliament by private Members which include provisions bearing on the practice of medicine and affecting directly or indirectly the medical interests of the public. Unless, however, these measures attract attention in the public press they are apt to escape notice, even in cases where it is highly expedient that the Medical Council should be cognisant of their terms. By the courtesy of the Privy Council Office and of the Colonial Office we are now usually notified of measures having this character that are introduced under Government authority, and I have reason to believe that such representations as the Council has thought fit to offer on these have received careful consideration by the officials concerned. In order that the like opportunity should be afforded you in the case of private Members' proposals I have endeavoured to get the Council placed on the list of institutions to which copies of all Bills ordered to be printed are regularly sent from the Vote Office. Through the kind mediation of Mr. G. H. Radford, M.P., this privilege has been granted to the Council, and all Bills are now forwarded to the Registrar as they are printed. Members may at any time consult the file which will henceforth be preserved in the office for the information of the Council. In your name I have tendered to Mr. Radford the Council's thanks for the service he has thus rendered us.

With reference to the Charter sought for by the British Medical Association, there is reason to believe that the objections to some of its proposals, which were formulated by our legal advisers, have been held deserving of consideration by the authorities. The Council will receive due notice from the Privy Council should any formal steps in relation to the further progress of the Charter be decided upon.

A considerable proportion of our time at this session will, I regret to say, be occupied by inquiries into charges against registered practitioners. Some have been convicted of offences against the law; others are complained of by public bodies, including the British Medical Association, for conduct which is alleged to be unworthy of professional men. In view of the fact that the Council now includes several new members, it will be necessary for me to repeat a warning already given at the suggestion of our legal advisers—namely, that those who are members of the Association, or of any other body at whose instance complaints are brought before the Council, should take no part in the hearing or determination of the charges in question.

Dr. LITTLE moved that the President should be thanked for his address and that it should be printed in the minutes.

Dr. NORMAN MOORE seconded, and the motion was agreed to with acclamation.

Address to the King.

The PRESIDENT moved that a humble address to His Majesty the King should be framed expressing the loyal feelings of the Council, and should be transmitted to His Majesty through the Secretary of State for the Home Department.

The motion was unanimously agreed to.

Yearly Tables of Examinations.

On the motion of Dr. D. C. MCVAIL the following yearly tables for 1909 were received:—(*a*) I. and II. tables showing results of professional medical examinations; (*b*) table showing results of professional examinations for qualifications in Sanitary Science, Public Health, or State Medicine; (*c*) table showing results of professional dental examinations; (*d*) table showing results of preliminary examinations; (*e*) answers sent by the medical authorities as to the exemptions granted by them in any part of their examinations during the year; (*f*) table showing results of competition held in January, 1910, for commissions in the Indian Medical Service.

At the instance of Dr. MCVAIL a motion was carried conveying to the Under Secretary for India the thanks of the Council for the returns which he had again furnished to it, and requesting that these returns might continue to be furnished to it.

Registration of Qualifications of Prince Edward Island.

The Council then considered a report of the Executive Committee in reference to the medical qualifications granted in Prince Edward Island. This report was made in pursuance of the standing order that—

> The Executive Committee shall be empowered to take the necessary steps for carrying into effect the clauses of the Medical Act, 1886, relating to the registration of the diplomas of colonial and foreign practitioners, and shall report to the Council from time to time their proceedings thereon.

The Executive Committee reported that—

> Part II. of the Medical Act (1886) having been extended by an Order in Council to the Province of Prince Edward Island, they have considered the conditions under which medical qualifications granted in the Province shall be recognised for registration in the Colonial List of the Medical Register of the United Kingdom, and adopted the following resolution:—
>
> That any person who holds the licence of the Medical Council of the Province of Prince Edward Island, granted after examination in medicine, surgery, and midwifery, together with the licence to practise in the Province, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886.

The PRESIDENT, in moving that the report should be received and entered in the minutes, said that when the Order in Council was passed the Province of Prince Edward Island had only a four years' medical curriculum. The Council had sent a communication pointing out that five years were required by it. With laudable celerity the Provincial Council of Prince Edward Island met and passed an Act making five years the period of the curriculum. On that the Provincial Council was to be congratulated.

Sir JOHN MOORE seconded.

The motion was agreed to.

Unqualified Medical Practice.

On the motion of Dr. NORMAN MOORE correspondence between the registrar and Sir Almeric FitzRoy, clerk of the Privy Council, on the subject of unqualified medical practice was placed on the minutes. In the first letter Mr. H. E. Allen, the registrar, wrote asking that the results of the inquiries made by the Local Government Board through medical officers of health on this subject should be communicated to the General Medical Council. Sir Almeric FitzRoy replied in the following terms:—

> Referring to your letter concerning the results of the inquiries made by the Local Government Board on the subject of unqualified medical practice, I have to state, for the information of the General Medical Council, that a large body of valuable and important evidence has been received by the Local Government Board in response to the circulars issued by them to the medical officers of health, and that arrangements are now in progress for the publication, in the form of a Parliamentary paper, of such parts of the information collected as may be found expedient.

Dr. LANGLEY BROWNE moved that the thanks of the Council should be conveyed to the Local Government Board for its action in this matter.

Dr. LATIMER seconded. He said that the time seemed very opportune for further steps to restrict the evils which were going on in connexion with unqualified practice. These he detailed, pointing out also that legislation of late years had been increasingly tending in the direction of protecting the public in matters of health. Nevertheless medicines of the most potent kind were sold to the public, and no action was taken to provide that the contents were declared on bottles and wrappers to be most dangerous. He trusted that when the attention of the Government was called to this matter, and the Members of the Legislature were convinced by the mass of evidence that was now being brought forward of the existing evils, this branch of unqualified and illegitimate practice would be restricted. He hoped that the public would not be allowed to buy the fraudulent medicines issued by quacks. At any rate, labels ought to be affixed to the bottles to show what the contents were, so that the public might be informed of what was wholesome and what was not. The President had told the Council how under the state of the law it was impossible to restrict unqualified practice. All the members of the Council were familiar with the evils caused by the practice of unqualified people. He did not hesitate to condemn in the strongest manner the practice of the so-called medical herbalists. They had a sort of pseudo-sanction for their work. It was a fact that they did not confine themselves to herbal mixtures. He hoped that these people would be hit, as their practice was extremely injurious to the public. It was most desirable to restrict, and if possible to abolish, unqualified practice. He was glad that the Privy Council had been so ready in its response. There would be no difficulty in increasing the

mass of evidence against unqualified practice, and he sincerely hoped that the Legislature would see fit to restrict the sale of the so-called remedies to which he had alluded, and also the practice of people who possessed no proper medical qualification.

The motion was agreed to.

The Revision of the Medical Register.

A report from the Registrar dealing with the steps taken for the revision of the Medical Register in 1909 was received and entered in the minutes.

Mr. ALLEN, the Registrar, explained to the Council the main features of the report.

Delegation of Powers in Penal Business.

The Council received *in camerâ* a report from the Executive Committee in regard to the delegation of powers in penal business.

Appointment of Committees.

The following committees were appointed:—

Executive Committee: Dr. Norman Moore, Sir Henry Morris, Mr. Tomes, Dr. Langley Browne, Sir John Batty Tuke, Dr. McVail, Sir John Moore, and Sir Charles Ball.

Pharmacopœia Committee: The President, Dr. N. Moore, Dr. Barrs, Sir J. Moore, Sir George Philipson, Sir Thomas Fraser, Sir William Whitla, Dr. McVail, and Dr. Caton.

Finance Committee: Mr. Tomes, the President, Sir H. Morris, Sir J. B. Tuke, and Dr. Little.

Dental Committee: The President, Sir H. Morris, Mr. Tomes, Mr. Hodsdon, and Sir Thomas Myles.

Dental Education and Examination Committee: The President, Mr. Tomes, Sir H. Morris, Dr. Knox, Dr. Finlay, Sir Thomas Myles, and Sir Charles Ball.

Students' Registration Committee: Dr. N. Moore, the President, Dr. Adye-Curran, Sir J. B. Tuke, Sir Christopher Nixon, Dr. Mackay, and Dr. Mann.

Penal Cases Committee: The President, Dr. Saundby, Mr. Tomes, Dr. Finlay, and Sir Christopher Nixon.

The Council adjourned.

WEDNESDAY, MAY 25TH.

The Council spent the whole of the sitting to-day in the disposal of penal business.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—F. F. L. How (Section II.) and J. C. Johnson (Section I.), Middlesex Hospital; A. Y. Massey (Section I.), Toronto and University College Hospital; and A. R. Wade (Sections I. and II.), St. Bartholomew's Hospital.
Medicine. J. A. Laughton (Section II.), Charing Cross Hospital; J. G. Reidy (Section I.), London Hospital; and F. C. V. Thompson (Sections I. and II.), Guy's Hospital.
Forensic Medicine.—J. A. Jones, Manchester; O. Marshall, University College Hospital; E. Newhouse, Leeds; and J. G. Reidy and G. W. Simpson, London Hospital.
Midwifery.—E. Newhouse, Leeds.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: F. F. L. How, J. A. Jones, E. Newhouse, G. W. Simpson, and A. R. Wade.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates have passed the Final Examination for the Licence in Dental Surgery:—

E. R. Black, C. A. Furness, H. Kirk, J. M. Sherin, W. Stewart, and O. Trigge.

The following have passed in Group A of the First Dental Examination:—

A. C. Gordon, S. N. Manning, W. J. Marmion, A. W. Mooney, J. J. Murphy, G. Sheedy, and A. C. Wiley.

The following have passed in Group B of the First Dental Examination:—

L. E. Egan and W. F. Watson.

THE DRAINAGE OF BUDLEIGH SALTERTON.—At a meeting of the Budleigh Salterton urban council held on May 17th it was decided to apply to the Local Government Board for sanction to borrow £9700 for a drainage scheme for the town.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—Mr. Henry Gregg Sherlock, F.R.C.S. Irel., has been elected Professor of Dentistry to the College.

ROYAL DENTAL HOSPITAL.—The Royal Dental Hospital, Leicester-square, has received a legacy of £1000 by the will of the late Mrs. Elizabeth Cooper, per Mr. John H. Hale, the sole executor.

THE SEWERAGE OF FROME.—A Local Government Board inquiry was held at Frome on May 19th into the application of the urban district council to borrow £7000 for purposes of a sewage disposal scheme for Frome.

SOCIETY FOR TRAINING TEACHERS OF THE DEAF AND FOR THE DIFFUSION OF THE "GERMAN" (PURE ORAL) SYSTEM.—The annual general meeting of this society, postponed from May 25th, will be held on Wednesday, June 22nd, by the kind permission of Mrs. Herbert Fletcher, at 20, Devonshire-place, Portland-place, W., at 3.30 P.M.

THE NEWTON ABBOT BOARD OF GUARDIANS AND ARTIFICIAL TEETH.—At a meeting of the Newton Abbot board of guardians held on May 18th, it was decided to allow a female inmate of the workhouse, who had had the whole of her teeth removed by the advice of the medical officer, and who was willing to leave the institution and earn her living, a set of artificial teeth. The cost was not to exceed 4 guineas.

THE BRISTOL EYE HOSPITAL.—At a recent meeting of the friends of the Bristol Eye Hospital it was decided to hold the centenary fête of this institution at the Zoological Gardens, Clifton, on June 15th and three following days. It is hoped that a satisfactory sum will be raised for the hospital, as the expenditure exceeds the income by about £500 per annum, and funds are also required for an extension of the out-patient department.

DR. DOYEN'S LECTURES.—On Saturday, May 14th, Dr. Doyen brought to an end his course of lectures on descriptive anatomy in its relations to surgical technique. At this last lecture, which was, in a way, a recapitulation of the course, together with an exhibition of magnificent anatomical sections thrown on the screen, a large crowd attended, but one which this time was perfectly attentive and respectful. Among those present were M. Mirman, Director of the Department of Hygiene and Medicine at the Ministry of the Interior, and M. Mesureur, the Director-General of the Assistance Publique, both of whom expressed much astonishment at the new methods of demonstration put forward by the lecturer. Dr. Doyen will from June 13th to 18th give another course of six lectures upon the processes of immunity, with lantern slides showing the details of phagocytosis. These lectures will take place in the same conditions as the former ones and at the same place. There has therefore been started in Paris a course of medical teaching, eminently interesting, to which there is free entry for all students as well as for French and foreign medical men.

THE MEDICAL DEFENCE UNION.—The annual general meeting of the Medical Defence Union was held at the Royal Station Hotel, Hull, on May 19th. Before formally opening the meeting, the President, Mr. Stamford Felce, stated that it had been duly considered as to whether the date of the meeting should be postponed in consequence of the death of His Majesty King Edward VII. It was, however, decided that as the business was purely statutory there was no necessity for such alteration of date. Before carrying out the agenda the President moved a resolution of respectful sympathy with the Queen-Mother in the great loss which Her Majesty, the Royal Family, and the United Empire had suffered. This was carried silently, the members upstanding. The President, after the minutes had been confirmed, gave an address upon the disabilities of medical practice, and the absolute necessity for every registered practitioner to avail himself of the protection afforded by the Medical Defence Union and kindred societies. The annual report was then presented and, being approved by the meeting, was ordered to be entered upon the minutes. The usual statutory resolutions were passed, and Mr. Stamford Felce, Mr. T. Gunton Alderton, and Mr. M. Hallwright were re-elected members of

the council. After a vote of thanks to the President and Council for their work, the meeting terminated.

RESEARCH DEFENCE SOCIETY.—The annual general meeting of this society will be held on Friday, June 3rd, at 5 o'clock, in the library of the Royal College of Physicians of London. The chair will be taken by Lord Cromer, the president of the society.

Dr. F. W. Andrewes will deliver the Croonian lectures on Tuesdays and Thursdays, June 14th, 16th, 21st, and 23rd, at 5 o'clock, at the Royal College of Physicians of London. Subject, "The Behaviour of the Leucocytes in Infection and Immunity."

THE TRURO BOARD OF GUARDIANS AND THE MIDWIVES ACT.—At a meeting of the Truro board of guardians held on May 18th it was decided to allow a fee of 1 guinea to the district medical officers who were called by midwives in cases of emergency, but it was also determined that before applying to the guardians for these fees the medical officer should be asked to make a reasonable offer to obtain the fee from the person attended by him.

UNIVERSITY OF OXFORD.—The Board of Faculty of Medicine gives notice that the examination for the Diploma in Ophthalmology will be on July 19th, 20th, and 21st, and not as previously advertised.—Harold Scurfield, M.D. Edin., D.P.H. Camb., has been elected an examiner for the Diploma in Public Health. For the Diploma in Ophthalmology Edward Treacher Collins, F.R.C.S. Eng., and John B. Lawford, F.R.C.S. Eng., have been appointed examiners.—The following change in the regulations relating to the examination for the degree of B.M., B.Ch. will come into effect in Michaelmas term, 1910: Instead of the certificate hitherto required, one will be required signed by the medical officer of a lying-in hospital or the lying-in wards of a general hospital showing that the candidate has either (1) regularly attended the indoor practice of a lying-in hospital or the lying-in wards of a general hospital for a period of three months, and after having received therein practical instruction in the conduct of labour, under the personal supervision of the medical officer, has conducted 20 cases of labour under official medical supervision; or (2) given daily attention during one month, upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital, and has therein conducted cases under the personal supervision of a medical officer of the hospital, by whom, having been adjudged competent, he has been authorised to attend, and has attended, not less than 20 cases of labour under official medical supervision. To the medical officer who signs this certificate the candidate must produce evidence that, prior to the course certified, he has acted as surgical dresser for six months and has acted as clinical medical clerk for a like period, and has attended a course of instruction in midwifery.

THE BRITISH MEDICAL BENEVOLENT FUND.—On May 26th a drawing-room meeting was held at the house of Sir Alfred Fripp for the purpose of calling attention to the work of the Guild of the British Medical Benevolent Fund. Mr. H. Cosmo Bonsor, chairman of Guy's Hospital, presided, and there was a large attendance of ladies. Mr. S. O. Buckmaster, K.C., in moving the first resolution, "That this meeting pledges itself to do its utmost to support the objects of the British Medical Benevolent Fund Guild," said that the Guild endeavoured by personal sympathy to assist a class of men who had benefited everybody. The medical profession stood by itself, although there was no great trouble or sorrow that those men were not called in to witness and to share. Few more pathetic things could be imagined than the anxiety and suspense with which in face of some impending trouble people hung upon the lips of the doctors, asking them to do what was often impossible—to set back the hand of the clock, to check the progress of fatal illness, and to arrest the sure and certain foot of death. Such demands, though extravagant, never failed to meet with a ready response, and if that was true concerning those who lived in the West-End, it was much truer of the vast area of society of which the West-End formed only a very small, even though it was a glittering, part. The foot of the medical man was never so fleet as when it ascended the staircase of a poor man's home. They should always judge a profession by the best which it produced, firstly, because it showed what the profession was capable of producing, and secondly, because the standard of the best man was the standard to which all would try to attain. Judged by that standard there was no profession in the world which was comparable to the practice of medicine. It was a great privilege that doctors possessed to be able in the pursuit of their livelihood to bring comfort and happiness to the people with whom they were brought into contact. But the struggle was a hard one for many, and rendered additionally difficult, and to his mind additionally terrifying, by the fact that, no matter what the circumstances might be, appearances had to be kept up. Mrs. Finn, in seconding the resolution, referred to the difficulties under which medical missionary work was started in Jerusalem with the small sum of £10. That work had grown very rapidly, however, and she exhorted her listeners not to be discouraged by reason of lack of funds at the commencement. The resolution on being put to the meeting was carried unanimously. Sir Alfred Fripp apologised for the absence of Dr. Russell Wakefield, dean of Norwich, and Dr. Arthur Latham, who had been prevented from attending the meeting. He was glad to say that owing to such publicity as the movement had already received an annuity of £20 had been promised, and two subscriptions of £10 10*s.* and smaller sums had also been received. Dr. S. West said that he hoped that this meeting would be the first of a series of drawing-room meetings. Guy's Hospital was to-day represented by Mr. Bonsor, and he trusted that all the London hospitals would take part in the work. He always told his students when addressing them on general matters that they had two great duties to perform, the one being to insure themselves, and the other to pay the debt which they owed to their less fortunate brethren. It was their duty to subscribe to a benevolent society. Lady Tweedy then proposed a vote of thanks to Sir Alfred and Lady Fripp for their kindness in putting their drawing-room at the disposal of the society, and the meeting terminated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ASH, EDWIN, M.D. Lond., has been appointed Assistant Physician to the Italian Hospital, London.

BURTON, W. R., L.R.C.P. & S. Irel., has been appointed District Medical Officer to the Spalding Union.

BUTT, H. T. H., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Medical Officer to the Randfontein Estates Gold Mining Company, Randfontein, Transvaal.

DIXON, T. BENJAMIN, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Bristol Dispensary.

GILLESPIE, W. J., L.S.A., has been appointed District Medical Officer to the Poplar Borough Parish.

HARRIS, JOHN HENRY, M.D. Durh., M.R.C.S., L.S.A., D.P.H. Camb., has been reappointed Medical Officer of Health for the Dartmouth and Totnes (Devon) Port Sanitary Authority.

HERAPATH, CHARLES EDWARD KYNASTON, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Bristol Dispensary.

LANDER, H. W. G., M.B., C.M. Edin., has been appointed District Medical Officer to the Bakewell Union.

O'MEARA, W. H., M.R.C.P., L.R.C.S. Irel., has been appointed one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Carlow.

PASSMORE, J. E. S., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Gainsborough District of the county of Lincoln.

POLLARD, REGINALD, M.B. Durh., D.P.H., M.R.C.S., has been appointed Honorary Anæsthetist to the Metropolitan Throat and the Royal National Orthopædic Hospitals.

ROBERTS, CHARLES, M.B., B.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Assistant Surgeon to the Manchester Royal Infirmary.

SCRASE, J. J. S., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Newton Abbot Union.

SHARP, P. J., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Blackford District of the county of Perth.

SMITH, J. W., F.R.C.S. Eng., has been appointed Honorary Surgeon to the Manchester Royal Infirmary.

SOMERVILLE, H., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer to the Bedford Union.

TONGE-SMITH, W., M.D. Aberd., D.P.H., has been appointed District Medical Officer to the Pocklington Union.

TREVOR-ROPER, B. W. E., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer to the Alnwick Union.

WADE, CHARLES, L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the Boscastle (Cornwall) Friendly Society.
YOUNG, ERNEST, M.D. Durh., has been appointed Honorary Physician to the Farringdon General Dispensary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL INFIRMARY.—Anæsthetist.
ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing.
BENENDEN SANATORIUM.—Assistant Medical Officer, unmarried. Salary £80 per annum, with board, lodging, and laundry.
BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Salary at rate of £25 each per quarter, with board and washing.
BEVERLEY, EAST RIDING LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.
BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES, Birmingham.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum.
BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.
BRISTOL, HAM GREEN FEVER HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, rooms, and attendance.
BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.
BRIXTON DISPENSARY, Water-lane, S.W.—Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, attendance, coal, and gas.
BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.
BUXTON, WYE HOUSE ASYLUM.—Assistant Medical Officer. Salary £120 per annum.
CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry in each case.
CHEADLE, MANCHESTER ROYAL INFIRMARY CONVALESCENT HOSPITAL.—Assistant Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board and residence.
CHELMSFORD, ESSEX EDUCATION COMMITTEE.—School Medical Officer. Salary £350 per annum.
COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance. Also Honorary Aural Surgeon.
DERBYSHIRE ROYAL INFIRMARY.—Honorary Assistant Physician.
EAST BENGAL, BAPTIST MISSION HOSPITAL.—Locum Tenens, unmarried. Salary £120 per annum, house accommodation, and travelling expenses.
EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—House Physician.
GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.
GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.
HEMEL HEMPSTEAD, WEST HERTS HOSPITAL.—House Surgeon. Salary £100 per annum, with rooms, board, and washing.
HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, Maida Vale, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, and washing. Also House Surgeon and House Physician, early in July.
HULL, ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.
INDIAN MEDICAL SERVICE, India Office, London.—Fifteen Commissions in His Majesty's Indian Medical Service.
ITALIAN HOSPITAL, Queen-square, London, W.C.—House Surgeon for six months. Salary £60 per annum, with board and residence.
KENDAL, WESTMORLAND CONSUMPTION SANATORIUM.—Assistant Resident Physician, unmarried. Salary £100 per annum, with residence, board, &c.
LEICESTER BOROUGH ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.
LEICESTER INFIRMARY.—Second House Surgeon. Salary at rate of £100 per annum, with board, lodging, and washing. Also Assistant House Surgeon. Salary at rate of £60 per annum, with board, lodging, and washing.
LIVERPOOL STANLEY HOSPITAL.—House Surgeon for two months. Salary 2 guineas per week.
MANCHESTER ROYAL INFIRMARY.—Assistant Surgical Officer. Salary £35 per annum.
MANCHESTER WORKHOUSE, Crumpsall.—Junior Resident Assistant Medical Officer, unmarried. Salary £110 per annum, with apartments, washing, &c.
MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with board, residence, and washing.
MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician at Northwood. Salary £75 per annum, with board, residence, and washing.
NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.
PADDINGTON, PARISH OF.—District Medical Officer and Public Vaccinator. Salary £100 per annum.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Two House Surgeons and House Physician for six months. Salary at rate of £60 per annum each, with board, residence, and washing.
REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.
RENFREW, COUNTY COMMITTEE ON SECONDARY EDUCATION.—School Medical Inspectors for No. 1 and No. 2 Districts. Salaries £300 per annum.
ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist.
ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.
RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon. Salary £125 per annum.
ST. ANDREWS UNIVERSITY.—Examiners in Faculty of Medicine and Faculties of Science and Medicine.
ST. MARYLEBONE INFIRMARY, Rackham-street, Ladbroke Grove-road, Notting Hill, London, W.—Medical Superintendent. Salary £450 per annum, with unfurnished house, gas, coals, and washing.
SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer. Salary £120 per annum, with furnished apartments, attendance, and rations.
SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, washing, lodging, &c.
SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, lodging, and washing.
SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.
SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.
SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.
SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.
STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.
STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Resident Surgical Officer. Salary £120 per annum, with apartments, board, and washing. Also Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.
TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.
UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.—Assistant Physician.
UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—Lecturer in Mental Physiology and Mental Diseases.
VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum each, with board, lodging, and washing.
WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry provided.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Linlithgow, in the county of Linlithgow; at Midleton, in the county of Cork; and for the Mottram and Glossop District of the counties of Chester and Derby.

Births, Marriages, and Deaths.

BIRTHS.

AINSLIE.—On May 19th, at Pitfour, Kington, Herefordshire, the wife of Dr. W. Ainslie, of a daughter.
ALCOCK.—On May 18th, at Abbey Gate, St. Catherine's, Lincoln, the wife of Dr. Frank Alcock, of a daughter.
BARNES.—On May 10th, at The Pole, Failsworth, Manchester, the wife of Dr. Ernest Barnes, of a daughter.
PAUL.—On May 14th, at Isledon-road, Finsbury Park, N., the wife of John F. Paul, M.R.C.S., L.R.C.P., of a son.
SUTCLIFFE.—On May 10th, at Dalby-square, Margate, the wife of W. Greenwood Sutcliffe, F.R.C.S. Eng., of a daughter.

MARRIAGES.

BUTT—BENSUSAN.—On May 16th, at the British Consulate, Naples, Geoffrey Crawford Butt to Ruth Bensusan, M.D., B.S.
HALL—COLMAN.—On May 21st, at All Saints' Parish Church, Hove, Donald George Hall, M.A., M.D. Cantab., M.R.C.P. Lond., to Marjorie, only daughter of Jeremiah Colman, J.P., Hove.

DEATHS.

CANE.—On May 20th, at Edmonton, London, Frank E. Cane, L.R.C.P. & S. Edin., D.P.H. Cantab., Divisional Surgeon, Metropolitan Police.
BARTER.—On May 20th, at Greencroft-gardens, N.W., William Barter, M.D.

N.B.*—*A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE PURITY OF FOOD.

WE yield to no one in our concern for the purity and wholesomeness of food supplies, and we doubt whether the promoters of the Pure Food and Allied Trades Exhibition held at the Royal Horticultural Hall, Vincent-square, Westminster, this week have done any service to the cause judging from the obviously exaggerated and incorrect statements which have appeared in the accounts of the exhibition in the daily press and which we suppose were inspired by those connected with the exhibition. As examples we may quote the following:—"Annatto, which at one time figured largely in the adulteration of milk, has now been superseded by cheaper articles such as formaldehyde, peroxide of hydrogen, and fluoric acid." (Annatto, of course, is used to give a yellow creamy colour to the milk and not one of the substances which are said to have superseded annatto would answer the same purpose.) "The peroxide is an article often used by ladies for hair-bleaching purposes, while fluoric acid is of such a biting nature that it cannot be kept in glass bottles, but has to be enclosed in special receptacles made of indiarubber." (We challenge anyone to demonstrate to us that fluoric acid, the substance described as of a "biting nature," is ever added to milk or that milk ever contains it.) "Vinegar which is used in the preparation of cheap sauces and pickles is chiefly composed of sulphuric acid." (We challenge this statement with as much confidence as the previous one.) "Cocoas contain red lead." (We doubt very much whether the slightest proof can be obtained of this.) We welcome the public ventilation of such questions as the addition of preservatives and colouring matters to foods, the chemical bleaching of flour, the contamination of foods by dirty handling and transit, and so forth, but no advance will be made by putting forward statements which are untrue. The imperfections of the Food and Drugs Act are not the fault of the public analyst, but arise chiefly out of the elastic interpretations given to the clauses in the law and the fact that those before whom legal proceedings are taken have in general no technical knowledge.

We have urged again and again the appointment of a court of reference composed of scientific and legal authorities, with whom alone the sound decision of questions involving a knowledge of medicine, physiology, and analysis can be left. The present Food and Drugs Act would then work with much better effect. But as it is, we do not hesitate to say that it requires no amendment whatever to deal with fluoric acid in milk, sulphuric acid as a chief constituent of vinegar, lead or other poisons in confectionery—substances about the harmfulness of which there can be no shadow of a difference of opinion.

AN ARTIFICIAL NAIL.

To the Editor of THE LANCET.

SIR,—I have a patient, a girl, who has had the matrix of her right thumb-nail destroyed, and of course a new nail will not grow. She is naturally very distressed and wants to know if an artificial nail can be provided. Can any of your readers tell me if such things are made and how they are fixed on?

I am, Sir, yours faithfully,

May 18th, 1910. MEDICUS EDIN.

A DEATH FROM LEAD POISONING IN BIRMINGHAM.

IT seems somewhat of an anomaly that in these days of sanitary administration and factory legislation a death from industrial lead poisoning should occur in a city like Birmingham, and the narrative which was unfolded in the *Times* of May 19th raises questions as to how far there is as much coördination between the several officials more or less involved as could be desired. A painter's labourer, whose principal work was to prepare old wheels for the painter by scraping off the old paint, dies from lead poisoning, and at the inquest it transpires, and is admitted by the secretary of the firm, that there was not proper provision for washing, the patient having complained to his wife that as there was no place in the works to wash he had to take his meals with dirty hands. The secretary, asked whether in his opinion the washing of hands in buckets and their drying upon old rags was sufficient provision, replied that this was all that they had possessed for 60 years, and we are glad to see the comment of the deputy coroner that methods which might have sufficed 60 years ago, when there were no Factory Acts and little knowledge as to lead poisoning, were no longer applicable to-day. The secretary to the works stated that he had never received any copy of the Home Office regulations, but it seems to us incredible that an official connected with these works should not have been alive to the possibility of lead poisoning in this case, more especially as the patient had repeatedly expressed the opinion to his wife that he was suffering from lead colic. It is a misfortune that the patient did not apparently seek medical advice, for in this manner the case might have been duly notified to the Chief Inspector of Factories under the provisions of the Factory and Workshops Acts, and the washing accommodation inspected. It would appear that the only means of overcoming this indisposition of the worker to seek medical advice is to provide for periodical medical inspection of the workers, as is so often arranged for in connexion with those engaged in the phosphorus industry. Apparently some reforms have been now introduced into the works in question in consequence of this unfortunate occurrence, but it would be better if reforms such as these could be brought about in some other manner than through deaths. We must not, of course, lose sight of the fact that within recent years there has been an enormous reduction annually in the number of deaths from lead poisoning, but if cases such as this one are to be avoided more coöperation between the sanitary and factory officials is desirable.

AS OTHERS SEE THEMSELVES.

"A new scheme a young German doctor discovered much sickness to cure,
But all our old doctors, so placid, to learn it could never endure.
Was it lost? Not at all; just exported; and when from abroad it came back
Quite unaltered, *then* Germans acclaimed it. Only Germans with us credit lack." —From the *Fliegende Blätter*.

HOVE AND SCHOOL MEDICAL INSPECTION.

THE Hove town council at a recent meeting ratified the proceedings of its education committee, deciding to engage a properly qualified dentist to attend to defective teeth among the school children of the borough at a cost not exceeding £100 per annum for one year, and to provide the necessary equipment at a cost not exceeding £40; to select, as a preliminary step, ten chronic cases of ringworm of the scalp and treat them by the X ray system at an estimated cost of £2 2*s.* each; and to provide a special class for mentally defective children under the Elementary Education (Defective and Epileptic Children) Act, 1899. In the cases of defective eyesight the parents are to provide spectacles themselves, and the local public institutions are to deal with cases of large tonsils and adenoids. Provision has been made at Hove in dealing with parents who are indifferent as regards the health of their children. Dr. L. A. Parry, the school medical officer, has found the coöperation of parents in the subsequent treatment of defects notified to them to be disappointing.

TAKING THE OATH.

To the Editor of THE LANCET.

SIR,—Can you tell me what status a witness has in a court of law as regards taking the oath? Does the new form of taking the English oath supplant the Scots fashion, and has the Act regarding the new English form deprived a witness of his right to insist on taking the Scots oath? Has a judge of any status the power to refuse to allow the Scots oath? I should be very grateful if at an early date you could give answers to these questions in your columns.

I am, Sir, yours faithfully,

May 13th, 1910. J. R.

*** The Oaths Act, 1909, which has introduced a form of taking the oath in a court of justice by holding a Testament in the uplifted hand and repeating a prescribed form of words, does not repeal any other Act or part of an Act, and as far as we are aware Section 5 of the Oaths Act, 1888, is still in force. Under it a witness was given the right to ask to be sworn in the Scotch fashion and to be so sworn without further question. The Act of 1909 was passed to meet the views of those who objected to the kissing of the book, and it was evidently intended to be adopted and followed universally.—ED. L.

ADULTERATION.

A War Office manual regarding military cooking gives some hints to cooks as to articles likely to be adulterated, and some of the quotations are not without humour. For instance, cayenne pepper is said to be often adulterated with brickdust, whilst black and white pepper is much adulterated with meal, clay, grate rubbish, burnt bread, &c. Coarse brown sugar frequently contains sugar mites; and it is extensively adulterated with sand, plaster of Paris, chalk, flour, and maize. Salt is declared to be the only article which it is "almost impossible to adulterate."

SLEEPING SICKNESS.

THE Sleeping Sickness Bureau, which has its headquarters at the Royal Society, has issued an admirable little pamphlet for the use of travellers and residents in tropical Africa, showing how to avoid the infection of sleeping sickness, and giving an account of the glossina palpalis and other biting flies. The pamphlet sets out in plain words how sleeping sickness is caused, how the organism is conveyed from the sick to the healthy, how the glossina palpalis may be distinguished from other blood-sucking diptera, and the best methods of avoiding infection. The account of the fly itself, and of the occasions under which travellers are most liable to be bitten, is supplied by Dr. W. M. Graham, the director of the Medical Research Institute at Lagos. Preventive methods are clearly set forth, and the Sleeping Sickness Bureau asks for any authenticated information

about the life-history and habits of the fly which travellers can supply, remarking that "our knowledge of the life-history of the fly is still very imperfect." The pamphlet should be in the hands of every traveller who goes to South Africa or tropical Africa or the south-west corner of Arabia, which are the districts where the glossina lives, and applications for copies should be addressed to the Director, Sleeping Sickness Bureau, Royal Society, Burlington House, London, W.

THE PREPARATION OF TEA.

ONE factor that does not count for abstinence from alcohol is the invariably long time which is taken to prepare tea. In the way of providing a stimulant nothing can be quicker than supplying a half pint of beer or a glass of, say, whisky-and-soda. When, however, tea is the stimulant ordered there is considerable time occupied in getting it ready for reasons which it is difficult to see. Boiling water is, or should be, available at most places of public refreshment, yet when tea is ordered it would seem that some machinery is involved; the tea, at all events, is a long time coming, a process has to be gone through which inordinately detains the customer. This delay is a source of inconvenience, in particular to travellers, whether they travel by rail, motor or cycle, or on foot, and the temptation is to save time by ordering an alcoholic drink, which is served promptly. The moral is obvious.

THE DUTIES OF A PUBLIC VACCINATOR.

To the Editor of THE LANCET.

SIR,—Will you kindly answer the following? Can a public vaccinator vaccinate a child under three months, enter it in his register, and charge accordingly? I am, Sir, yours faithfully,

May 19th, 1910. T. L. ASHFORTH.

*** A public vaccinator is obliged to attend and vaccinate any child, whether it be under three months old or not, if requested by the parents to do so; he is obliged to enter the proceeding on his register and is entitled to charge the work to the vaccination authority. Further, under the amended order of Jan. 27th, 1910, and various orders of 1907, the vaccination officer is instructed to communicate with the parents of all unvaccinated children when they attain the age of three months.—ED. L.

THE NORTH WALES TEMPERANCE FEDERATION.

THIS body is issuing a manifesto, signed by 101 medical practitioners in North Wales, upon the Use of Alcoholic Drinks. The manifesto is an appeal to all medical men in North Wales to recognise that "what is considered to be a moderate use of alcohol" does not promote health, and asks them "especially not to give, or even seem to give, the sanction of their professional authority to any general employment of alcoholic drinks in cases of disease."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (Third Meeting). Re-opened by Dr. William Bulloch, and continued by Sir William B. Leishman, Sir John McFadyean, Professor R. T. Hewlett, Mr. K. W. Goadby, Dr. J. Henderson Smith, Dr. Arthur Whitfield, Dr. John Freeman.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—George C. Cathcart, L. Hemington Pegler): at 5 P.M.

Cases and Specimens.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton): at 8.30 P.M.

Annual General Meeting. Election of Officers and Council for Session 1910-11.

Paper:

Dr. Joseph Bolton: The Relief of Symptoms of Prostatic Obstruction by Electrical Treatment.

Discussion:

On the Relative Value of Various Types of High Tension Transformer (including Coil) used for the Production of X Rays (opened by Dr. Reginald Morton).

SATURDAY.

OTOLOGICAL SECTION (Hon. Secretaries—Hunter F. Tod, H. J. Marriage) at 11, Chandos-street, W., at 10 A.M.

Paper:

Dr. Wyatt Wingrave: Notes on the Pathology of Cholesteatoma.

Cases and Specimens:

Mr. A. L. Whitehead: Temporo-sphenoidal Abscess; Vomiting entirely Absent.

Dr. P. H. Abercrombie and Dr. Dan McKenzie: Hysterical Deafness with Active Vestibular Reactions.

Dr. H. J. Davis: Deformity of Both Pinnæ Resulting from Perichondritis following Double Mastoid Operation.

Dr. Hunter Tod: (1) Exostosis of Right External Meatus; (2) A Case in which the Clinical Symptoms Simulated a Cerebellar Abscess; (3) Cholesteatoma or Keratosis Obturans of the External Auditory Canal.

Mr. George Wilkinson: Two Cases of Cholesteatoma of Unusual Size.

Dr. P. Watson Williams: Myelogenous Sarcoma of the Right Temporal Bone with Extension through the External Meatus, Resembling an Aural Polypus.

Mr. G. J. Jenkins: Fracture of the Temporal Bone.

RONTGEN SOCIETY, 20, Hanover-square, W.

THURSDAY.—8.15 P.M., Dr. H. Pirie: Practical Observations on Everyday X Ray and Electrical Work; Filtration of Rays; Measurement of Rays; Rapid Stereoscopic Methods, &c. (with lantern).—Dr. R. Knox: Recent Improvements in Radiographic Technique (with lantern).—Dr. Hampson will show a New Form of Apparatus for Producing Rythmical Variations in the Strength of Electrical Currents.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. W. Evans: Clinique (Skin). 5.15 P.M., Lecture:—Dr. R. Russell: Diagnosis of Disseminated Sclerosis.

TUESDAY.—4 P.M., Dr. F. J. Wethered: Clinique (Medical). 5.15 P.M. Lecture:—Dr. C. Mercier: Demonstration of Mental Cases.

WEDNESDAY.—4 P.M., Mr. A. H. Tubby: Clinique (Surgical). 5.15 P.M. Lecture:—Dr. W. H. C. Greene: On the Treatment of Certain Fractures.

THURSDAY.—4 P.M., Dr. O. K. Williamson: Clinique (Medical). 5.15 P.M., Lecture:—Mr. T. Walker: The Diagnosis and Treatment of Papilloma of the Bladder.

FRIDAY.—4 P.M., Mr. C. Worth: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Dunn: Ocular Symptoms in General Disease.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Sleeping Sickness.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine. (Lecture II.)

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Bidwell: Surgery of Gastric Ulcer.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical (with Cases).

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Demonstration:—Dr. Meachen: Selected Skin Cases.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 2.15 P.M., Special Lecture:—Dr. F. Taylor: Tremors and Convulsive Movements.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture:—Mr. McGavin: The Surgery of Urethral Stricture.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4 P.M., Lecture:—Dr. M. Bruce: Aortic Incompetence and its Clinical Lessons.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.
TUESDAY.—3.45 P.M., Lecture:—Dr. Atkinson: Pharynx, and Naso-pharynx.
FRIDAY.—3.45 P.M., Lecture:—Dr. Abercrombie: Clinical Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY AND FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. J. Taylor: Eye Signs and Symptoms in Nervous Disorders.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.
THURSDAY.—4 P.M., Lecture:—Dr. Hutchison: Hysteria in Childhood.

MANCHESTER ROYAL INFIRMARY.
TUESDAY AND FRIDAY.—4.30-5.30 P.M., Honorary Staff: Post-Graduate Clinical Demonstration (Medical, Surgical, and Special Departments).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (1st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (2nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (4th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 25th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 19	29·61	E.	0·50	110	69	55	58	59	Cloudy
,, 20	29·63	S.E.	...	119	77	59	60	63	Fine
,, 21	29·91	N.W.	...	111	69	59	59	61	Overcast
,, 22	29·97	N.	0·01	112	77	54	59	66	Cloudy
,, 23	30·05	E.	...	125	77	56	59	66	Fine
,, 24	30·22	N.E.	...	112	63	52	54	58	Fine
,, 25	30·25	N.E.	...	94	58	49	47	49	Cloudy

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